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Pig Remains at the Ashbridge Estate, Toronto: The Importance of Swine in the Settlement of Upper Canada

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PIG REMAINS AT THE ASHBRIDGE ESTATE, TORONTO: THE IMPORTANCE OF SWINE IN THE SETTLEMENT OF UPPER CANADA

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ABSTRACT

This thesis examines the importance of the pig to settlers in Upper Canada by concentrating on relative ratios of different dietary species in an assemblage from the Ashbridge Estate (AjGt-1), Toronto, Ontario. In comparing documentary and zooarchaeological data, discrepancies are seen between the relative importance of pork in the accounts of early journal writers and travelers and in the bones recovered from archaeological sites.

The author proposes that pigs fulfilled other functions besides being a dietary item. The economic and ideological aspects of this animal-human relationship are examined. It is concluded that pigs served as agents in the Upper Canadian landscape, mediating between wilderness and settlement and thus facilitating urbanization. This culminated in the development of Toronto as a major pork-processing center by the late 1800s.

PIG REMAINS AT THE ASHBRIDGE ESTATE, TORONTO: THE IMPORTANCE OF SWINE IN THE SETTLEMENT OF UPPER CANADA

INTRODUCTION

Documentary research has often affirmed that pork was the meat most eaten by non-aboriginal settlers in Upper Canada (e.g., Ferris and Kenyon 1983; Kenyon and Kenyon 1992). Yet zooarchaeological evidence from other regions of North America suggests that other meats, beef in particular, formed a much larger portion of early diet than is traditionally thought (Bowen 1990; Bowen and Manning 1994; Miller 1971). An analysis of faunal remains from the 19th century Ashbridge Site (AjGt-1) in Toronto, Ontario provides an opportunity to test the importance of pork on an early Upper Canadian farmstead c.1810-1860. By comparing the faunal data from this site with that of contemporary Ontario sites and with documentary evidence, it may be possible to better determine not only the relative dietary importance of pork, but also the role of pigs in early settlement.

This study proposes that archaeological and documentary data show that whether or not pigs had the *dietary* importance that has been assumed, they *were* essential to early settlement in both practical and conceptual ways. In a strictly practical sense, pigs were the ideal source of protein on a "bush" farm. Moreover, they functioned as facilitators of settlement in an ideological as well as practical manner, as mediators between settlers and the wilderness. As traditional European symbols of both wilderness and civilization pigs acted as an interface between the two realms. As settlement became more established, this role lessened in importance, resulting in a conceptual marginalization of pigs that has continued to the present day. Using

documentary research on the diet of Upper Canadian settlers, obtained from settlers' journals, letters, and travelers' observations (see also Abrahamson 1981; Clow et al. 1989; Crouch 1980; Kenyon and Kenyon 1992), with zooarchaeological data from the Ashbridge Estate (AjGt-1) in Toronto and other Upper Canadian sites, this thesis will attempt to reveal the importance of pigs in early settlement both from a dietary as well as an ideological perspective. It might be possible to use relative quantities of pig remains as a barometer of the relative stage of civilization – i.e., the amount of land "cleared" and the level of access to markets – in different archaeological contexts. Documentary evidence will provide a window into the mindset of the early settlers and their attitude toward their livestock. Together these sources offer insight into the complex system of British colonialism.

Historic rural sites in Upper Canada reflect a transformation from bush farms in the late 18th and early 19th centuries, which had varying degrees of self-sufficiency and participated in networks of social exchange, to established farmsteads in the mid to later 19th century, which had greater degrees of urbanization and participated in a market economy. This shows a trend towards order (domestication, choice, control) and away from chaos (wilderness, unpredictability) in many ways, including subsistence strategies. The social sciences have relatively recently begun to consider animals as "significant and symbolic agents" within a socio-cultural milieu; seeing them not as merely part of, but as constitutive agents of landscape (Brownlow 2000:143). Some geographers have participated in developing a "new animal geography" which places animals in conceptual as well as physical space (Philo and Wilbert 2000:6). It may be

possible to approach the role of pigs in this respect as well as in terms of animal husbandry practices and dietary abundance.

For instance, one of the major industries which drove the growth of Toronto in the mid to late 1800s was pork processing. By the turn of the century, Toronto had become widely-known as "Hogtown" and "hog butcher to the Empire". Slaughtering and processing had become centralized. Farmers had the option of selling their livestock to large meat packing companies rather than slaughtering, butchering and packing pork themselves. The urbanization of Toronto and its surrounding area was partially driven not only by the economic value of pork as a unit of exchange but also by the role of pigs as facilitators of initial settlement. In this way, pigs were agents of change in the landscape. The increasing commercialization of the pork industry reflected less need for pigs in this role.

A corollary of this study will be an affirmation of the need for consistency in zooarchaeology with respect to quantification methods. Lack of consistency in methods used severely limits the ability to do useful inter-site comparisons. This will be explored in more detail in later chapters.

CHAPTER I
BACKGROUND TO STUDY

The theoretical constructs of historical archaeology were developed with a prehistoric bias (Leone 1992:130), with limited emphasis on primary sources, or in favor of the theoretical frameworks that were developed for nomadic hunters and gatherers (Bowen 1988; Reitz and Scarry 1985; Rothschild and Balkwill 1993). However, in historical archaeology there is usually a parallel data source in the form of written documents. Using both archaeological and documentary data can lead to great insight.

For instance, if cattle are recovered from a refuse pit, then it is relatively certain that the occupants who used that pit had access to beef. Butchering marks and age data may indicate whether the cows were raised for beef or for dairy, and whether they were purchased or home-slaughtered. Taphonomic evidence such as butchery marks and the presence or absence of charring may indicate how the meat was consumed. It is much more difficult to determine how the importance of beef was perceived, or how beef and the animals it came from functioned as part of an ideology. This is where documentary data can be of great help.

Sometimes documentary and archaeological evidence are contradictory. For instance, zooarchaeological evidence from the site of Bootts Mills in Lowell, Massachusetts indicates meat given to employees was of what we would consider poor

quality – not the most nutritious cuts and fatty (Beaudry 1993:94). Yet the company archives contain reports of how pleased the workers were with the food given to them. This discrepancy raises some interesting questions. Have concepts of "good" food changed over time? Or was there some cause for bias in the archival material? Another good example is Bowen's study of probate inventories from Mott's farm in Rhode Island (1975). Sheep numbered highly in the probate inventories studied; yet the zooarchaeological evidence did not give this impression. Bowen theorized that this reflected the exportation rather than consumption of sheep (1975:15).

Often it may be historical interpretations, rather than primary documentary sources, that conflict with archaeological findings. For example, the discoveries that beef formed a large component of colonial American diet and also that heads and feet were eaten often surprise modern Americans, who think of pork and wild foods as mainstays of early diet and have a modern squeamishness regarding animal body parts (Bowen and Manning 1994:1).

Zooarchaeological data generally lends itself more easily to processual studies, since faunal data is empirical (that is, it can be seen and measured) rather than impressionistic (Rowley-Conwy 2000:x). The theoretical framework of most zooarchaeological studies in the late 20th century was understandably, then, functional or processual (Reitz and Wing 1999:15). However, there has been increasing interest in integrating post-processual theory into zooarchaeology (e.g., Hesse 1994; Lev-Tov 1998; Ryan and Crabtree 1995). The approach of this study takes advantage of middle-range theory as articulated by Leone (1988) and Potter (1992). This is not exactly Binford's "middle range theory", which involved studying modern ethnographic

information and applying that to archaeological evidence (Binford 1981). Rather, middle range theory as proposed by Leone and Potter involves studying both archaeological and documentary evidence, not as complementary sources but as potentially contradictory sources. Incongruities between the two sets of data may provide us with more information than the sum of both sources. As independent sources of information, they offer different perspectives on the same subject (Bowen 1990:7; Potter 1992:10). It can be very easy to accept the authority of written documents. In this case, written sources appear to verify the overwhelmingly important place of pork as a staple of the early Upper Canadian diet. This study will test whether there are incongruities between the documentary and archaeological data regarding this, and if so, why this might be.

By combining essentially processual data with post-processual theory, the study of pig remains in relation to economics and culture as well as subsistence may prove enlightening. Early farmers were participating in social, economic and ideological systems that mediated their culture and their environment and affected their subsistence choices. Animals and food have important symbolic attributes as well as practical uses (Reitz and Wing 1999:29). Our use of animals, alive or dead, is never solely a matter of practicality but can be interpreted as a product of the cultural, as well as economic, systems in which we are participating.

Zooarchaeological studies of early America have demonstrated that beef was much more important in the meat diet than has traditionally been thought (e.g., Bowen 1990; Bowen and Manning 1994; Miller 1971). Bowen (1990:8) has gone so far as to state that "beef – not pork – was generally the most important meat" in English colonial

sites on the East Coast, despite historical interpretations which affirm that this place was held by pork. Beef accounts for 50-70% of the biomass for most east coast colonial sites (Brown and Bowen 1998:75). While published zooarchaeological studies are relatively scarce compared to those on sites in the United States, the documentary evidence for Upper Canadian foodways has been well-studied (e.g., Abrahamson 1981; Clow et al. 1989; Crouch 1980; Kenyon and Kenyon 1992). Four foodstuffs are consistently mentioned: pork, potatoes, wheat flour and tea. However, Bowen has suggested, with specific reference to pork, that "foods that are meaningful to us are not necessarily consumed in great quantity" (1993:8). It may well follow that a similar discrepancy exists in Upper Canada between the amount of pork actually consumed in the past and the amount that is *thought* to have been consumed. In the case of Upper Canada, rather than strong cultural tradition asserting that pork was overwhelmingly the main meat, it is the settlers' and travellers' accounts that fulfill this function.

1.1 Faunal Studies of Pigs in Upper Canada

Previous attempts have been made to interpret faunal remains as indicators of more than just the diet of early Upper Canadians. For example, Ferris and Kenyon (1983) attempted to tie variations in livestock holdings in early Upper Canada to both the ethnicity and wealth of the settlers. Their study was based on zooarchaeological analyses of five sites in southwestern Ontario combined with census data. A general pattern of initial pig farming was noted, and then, according to the ethnicity of the settlers, a shift over time to cattle or sheep. The use of pigs was interpreted as "an adaptation by European farmers to a new, harsh environment" (Ferris and Kenyon 1983:9). Their model asserts that due to their love for pork products the English kept

high proportions of hogs even after there was enough cleared land for other livestock; Scots and Northern Irish tended to raise more sheep as time went on and settlers born in the New World began to raise more cattle. Although Kenyon and Kenyon's study is a valuable attempt at developing a model of ethnic livestock preferences by using zooarchaeological and documentary evidence, the sample size is small. It would be interesting to see if the patterns they propose hold up on a larger scale. If so, then a move away from pig husbandry may indeed correlate not only with wealth but with ethnic origin.

Within faunal reports produced for salvage excavations on Ontario historic sites, Thomas (e.g., 1987) has attempted to relate changes in the relative amounts of pig remains identified to changes in socio-economic situations. He proposed that levels of wealth, amount of land cleared, and access to markets had an inverse relationship to the amount of pig bones identified in a site (Thomas 1987:31).

One factor that has not been considered within this general model of a move away from pig farming over time is the rising stature of Toronto as a centre of pork processing in the later 19th century. It is likely that some farms would have retained or increased their pig holdings to supply this industry. Although the faunal assemblages and documentary sources considered are earlier than this period, it should be kept in mind that this industry was built upon the rural economy that developed in Upper Canada during the later 18th and earlier 19th centuries.

1.2 Documentary Evidence for the Prevalence of Pork

Although contemporary documentary evidence describes the presence of beef, mutton, chicken, goose, turkey, eggs, dairy products, fish and wild game, pork is cited so often that it appears to have been the overwhelming source of protein in the early days of settlement. Fried or boiled pork, it was often referred to as the "national dish" (Guillet 1963:45; Langton 1964:65/6). It was even eaten raw by boatmen (Stewart 1889; Traill 1989[1836]:67).

However, it was not necessarily appreciated. Contemporary accounts of Europeans in early Upper Canada contain many laments by British newcomers about the quantity of pork that was eaten (e.g., Langton 1950:96, Moodie 1989b[1852]:357; Traill 1989[1836]:53). Young immigrant William Hutton wrote in a letter home: "As to pickles, which you may think detrimental to health, you would not dislike them if you had to live so long upon *fat, fat* pork as we have" (Boyce 1972:110). John Langton wrote that from November to April, one ate salt pork for breakfast, dinner and tea (Langton 1926:58). He advised his father that if he emigrated to Upper Canada he would have to dine often on salt pork for a year or two (Langton 1950:5). Moodie recounted the words of an acquaintance who told her of his dislike of the monotonous pork diet he endured in his first days of settlement:

> "Pork, morning, noon and night, swimming in its own grease...the very fowls of the air and the reptiles of the deep lifted up their voices, and shouted 'pork, pork, pork!'" (1989[1852]:80).

Other meats such as beef, chicken and venison are mentioned by travelers and settlers, however these do not seem to have been consumed *as often* as pork. There are no laments about the quantity of these meats eaten, although there are some criticisms of

their quality (e.g., Jameson 1990[1838]:269). The overwhelming frequency of complaints about the quantity of pork eaten would lead one to expect massive quantities of pig bones in the archaeological record of early sites. However, this does not appear to be the case. Yet there was something about pork that made a strong impression on these writers. Perhaps pork, or pigs in general, had significance beyond the strictly dietary.

1.3 The Settlement of Upper Canada

The British had won Upper Canada (the antecedent of the modern Canadian province of Ontario) from the French by a treaty of 1763, but it was sparsely populated by British military personnel, fur traders and an area of French settlement along the Detroit River. After the Revolutionary War ended in 1783, Americans who had been on the side of the British, known as "United Empire Loyalists", streamed from the U.S. into Canada, encouraged by free grants of land and supplies from the colonial British authorities. By 1791, over 10,000 Loyalists had arrived in Upper Canada (Taylor 1986:6). Still more settlers were needed to populate Upper Canada and defend it against possible American invasion. In 1792, Colonel John Graves Simcoe, the British governor of Upper Canada, proclaimed that free grants of land would be made to settlers of good character. All that was necessary was to swear an oath of loyalty to the King, clear a certain amount of land per year, and build a dwelling (Taylor 1986:6). This resulted in the immigration of thousands of "late Loyalists" to Ontario, mainly from the nearby states of New York, Pennsylvania and Vermont.

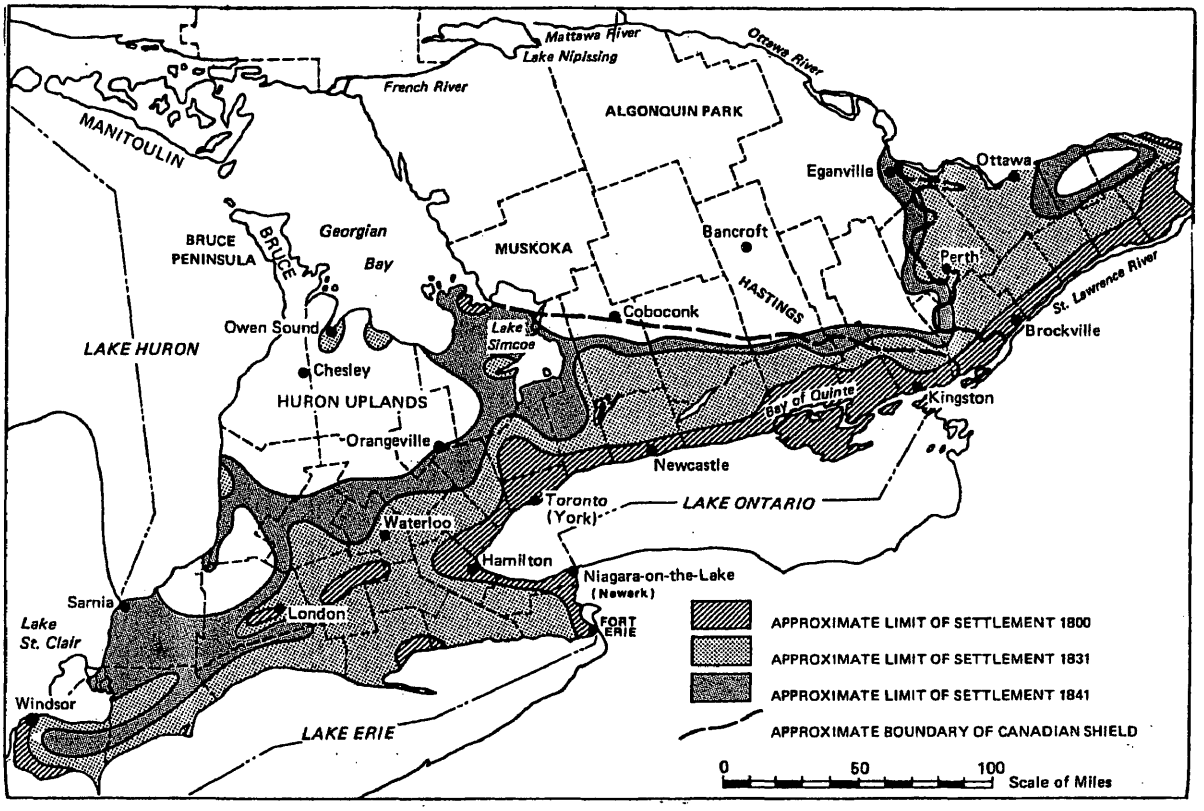
However, the quantity of American immigrants was limited and their loyalty to the Crown often suspect, so immigration directly from Britain and Ireland was encouraged. This resulted in waves of new immigrants from overseas, which

accelerated in the second quarter of the 19th century and continued until the third quarter. The land that had been cleared alongside Lake Erie and Lake Ontario was generally occupied by American settlers (such as the Ashbridges), so there was a move into the "bush", further into the interior of the heavily forested land. Railroads had not yet been built so transportation was by water or over crude dirt or log roads. In 1837, the population of Upper Canada had increased over the previous decade by an average of 18,712 persons per year and the entire population was estimated at 375,000 (Jameson 1998[1838]:145; see Figure 1 for a map of population growth in Upper Canada from 1800-1841). A great majority of the new immigrants were not farmers. Indeed, many were British officers on half-pay, given free land in return for their military service. Arrival in the bush could be a shock, as Guillet writes: "Instead of the meadows and lanes which the Englishman loved there were unending forests and swampy trails through the bush" (1963:9). Those who could adapt did very well. They cleared farms and prospered over time. Many could not adapt and starved, froze, died of disease, or sold their land and moved to towns. The bush was a great test of resourcefulness, strength and endurance.

1.4 The Ashbridge Site

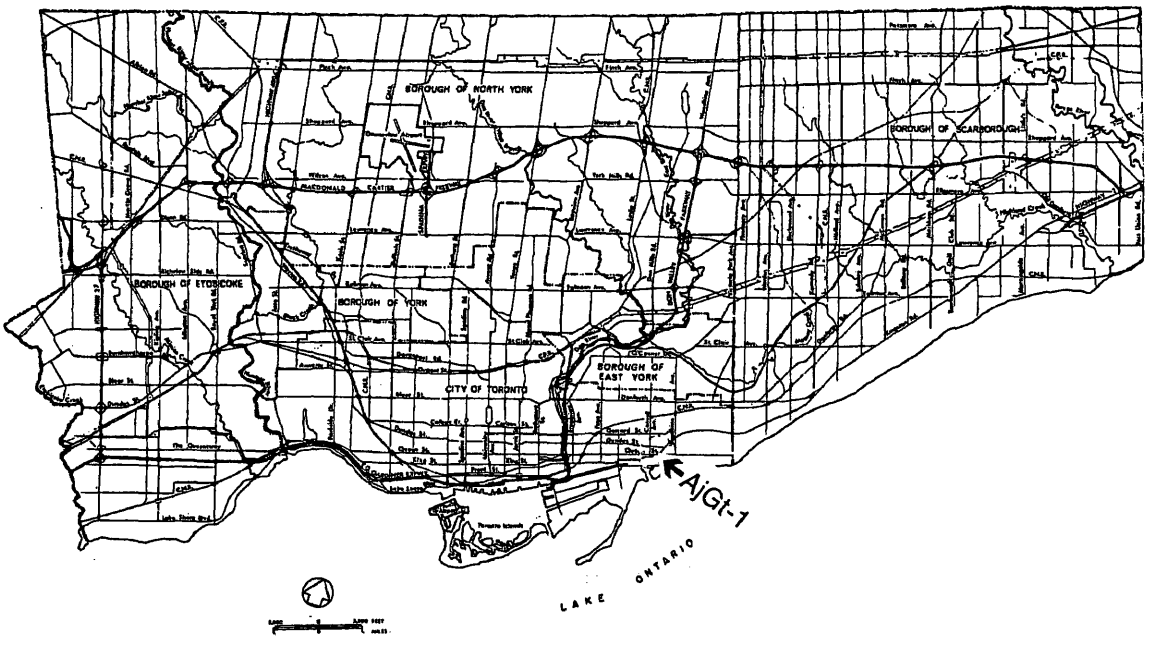
The Ashbridge Estate (AjGt-1) is located in the City of Toronto, Ontario at the intersection of Queen Street East and Woodfield Road (see Figure 2). The site is unique in urban Toronto in that it was occupied by the same family from 1793 to 1997. Although the original lot with its extensive farmland was gradually sold off in the late 19th century and 20th centuries to accommodate expanding urbanization, the dwelling area has remained undisturbed by development.

FIGURE 1



SPREAD OF SETTLEMENT IN UPPER CANADA, 1800 –1841
(Wood 2000:14)

FIGURE 2



LOCATION OF ASHBRIDGE SITE IN THE MODERN CITY OF TORONTO
(Glazebrook 1971:281)

The Ashbridges were "Late Loyalists" who arrived from Pennsylvania in 1793 to take up land on the north shore of Lake Ontario. They chose lots on the lakeshore east of the new Town of York (which would become the City of Toronto in 1834), beside a marshy bay that came to be known as Ashbridges Bay. This family group consisted of Sarah Ashbridge, an elderly widow, and her five children, including two married daughters and their husbands and children. It is likely that the family decided to emigrate due to financial problems and disputes with neighbors and their former Quaker congregation (Taylor 1986:5). An offer of free land in Canada would have provided an opportunity to escape these problems and start afresh. The Ashbridges, like many American immigrants, brought with them New World farming knowledge, including experience with clearing a farm from the bush. Sarah Ashbridge had already done this at least once in her lifetime, back in Pennsylvania (Taylor 1986:8). The family chose three adjacent lots east of the new Town of York (which became the City of Toronto in 1834) and separated from town by the significant barrier of the Don River, which did not have an even somewhat permanent bridge until 1809 (Taylor 1986:27). The present Ashbridge Estate formed part of Lot 9, which was granted to Jonathan Ashbridge, Sarah's younger son. The farm on Lot 9 remained in operation by Jonathan's descendants until 1912, when six acres were annexed by the city to build a school for the rapidly developing area. After this, the Ashbridges began severing the property for housing lots, and by 1943 the present Estate was all that remained of the original 117-acre grant (Taylor 1986:1).

Three dwellings have existed on the site: a log house, built by 1799 or 1800 and occupied until 1809 (Taylor 1986:16); a wood frame house, built c. 1809 and occupied until its destruction c.1913 (see Figure 3), and a brick house, built in 1854 and now owned by the Ontario Heritage Foundation (OHF). The site was deeded to the OHF in 1974 and the occupants, two great-granddaughters of the original settlers, continued to live there until their deaths. The Archaeological Resource Centre of the Toronto Board of Education carried out two test excavations in 1987 and 1988 in attempts to locate the site of the original log house (Archaeological Resource Centre 1988). From 1998 to 2000, a field school of the University of Toronto's Department of Anthropology carried out further excavation, in cooperation with the OHF. During these three field seasons the suspected area of the log house was excavated. This was adjacent to the foundation of the frame house, which currently encloses a rose garden. A cellar and a well were among the features uncovered (Latta 2000:4). Given the large size of the cellar (approximately 6 x 3 meters) and the evidence of wooden plank floors, there is good reason to believe that it may have been a full cellar under the original log house (Doroszenko, pers. comm.). The material analyzed for this study comes from this cellar area.

When the Ashbridges settled there in 1793/94, the site environment was quite different from today, when it is surrounded by urban development. The shoreline of shallow, marshy Ashbridges Bay was immediately to the south (it has since been moved further away by landfill operations in the 1950s). A small creek ran through the property towards the bay, creating a ravine. Forest cover was unbroken and would have consisted of mixed deciduous and evergreen forest (Jones 1946:4). Although the

FIGURE 3

THE 1809 HOUSE, ASHBRIDGE ESTATE (c.1913)
(Photograph courtesy of the Ontario Heritage Foundation)

Ashbridges were the first European settlers on the site, there is evidence of transient aboriginal occupation of the Pickering period (c.1100 A.D.) (Latta 2000:3). The marshy bay was home to "innumerable waterfowl and an excellent variety of fish" (Taylor 1986:11). Natural resources of animals and plants abounded, but as this study will show, the Ashbridges rarely took advantage of them.

CHAPTER II
METHODOLOGY

This study utilizes both zooarchaeological data and documentary evidence. One of the great advantages of historical archaeology is that both types of data are available. However, there are some cautions to be observed in using each type of evidence.

2.1 Documentary Sources

The most valuable primary documents for this study will be the first-hand accounts of settlers in Upper Canada, in the form of journals, letters or works meant for publication. There are quite a few of these, as the 19th century British reader was fascinated by accounts of far-away places, and many entertained the idea of emigrating themselves. However, biases existed that affected what went into these writings. Journals and letters, for instance, don't necessarily describe every meal in detail. What would be included would be things that were notable rather than the everyday. Letters to family and friends may have served various purposes. Settlers may have wanted letters to reflect a better reality so that family overseas would not be worried or think that emigration had been a mistake. On the other hand, some writers were asking for money or goods from their families back home (e.g., Langton 1926:67) and might have made things seem more desperate than they really were.

Travelers who published their observations tended to be well educated and were writing for a similar public at home. Because selling their work was an important

consideration, they were looking for curiosities to write about and may have focused on things that struck them as exotic or unusual. Moreover, travelers did not tend to spend much time in one place, so their knowledge would be superficial and situations they described perhaps not typical of the place or the inhabitants. It is not inconceivable that local inhabitants told them false or exaggerated stories to hold their interest. Travelers' accounts may reflect not only biases toward the "exotic" but other agendas. For instance, an oft-quoted source for contemporary descriptions of Upper Canada is Anna Jameson, an Englishwoman who published an account of her 1837 travels through Canada and the United States (Jameson 1990[1838]). Jameson had come to Canada to work out a legal separation from her husband, the Vice-Chancellor of Upper Canada, and was completely dependent upon his goodwill. She may not have wanted to write anything that would cause him embarrassment and lead to adverse consequences for herself; but she also needed to make money from her writing to augment her income. Her book would have to engage the interest of the British reader.

Emigrants' guides are another good resource for descriptions of livestock and diet. Guides endorsed by the colonial government (e.g., Emigrants Handbook 1832; Watson 1822) were intended to persuade people to emigrate to Canada. Therefore, they may have glossed over potential difficulties. Some guides written by private individuals professed to tell the "truth", although they were still written with a certain audience in mind (e.g., "Ex-Settler" 1835; Mackenzie 1833; Thompson 1998; Traill 1855).

Probate inventories, another source used to gain valuable information on diet and exchange (e.g., Bowen 1988) generally reflect the state of a farm at least a generation after first settlement, when it is likely more established and prosperous. This

can be seen in the case of the first Ashbridge probate inventories in Upper Canada, for the brothers John and Jonathan. In 1843 and 1845, when the inventories were made, the farms had been established for approximately 50 years. They do not reflect the days when the farm was being cleared out of the woods. Also, probate inventories reflect only livestock or preserved stores of food (Bowen 1990:109; McMahon 1981). Despite this, the value of using probate inventories can be shown by the fact that Jonathan Ashbridge's lists large quantities of sheep and pigs[1]. Yet sheep formed a minor part of the family's meat diet, based on the c.1810-1860 faunal assemblage. This discrepancy suggests that either the sheep were quite recent additions or that they were being sold rather than eaten.

2.2 Zooarchaeological Analysis

A faunal assemblage from the Ashbridge Estate (AjGt-1) in Toronto was analyzed using the comparative collection of the Howard G. Savage Osteo-archaeological Laboratory at the University of Toronto and reference materials by Brown and Bowen (1996), Gilbert (1990), Gilbert et al. (1985), Reitz and Wing (1999), and Schmid (1972). Each bone specimen was identified to the most specific taxon possible, weighed, and secondary data such as age and sex indicators and butchery marks were noted. The results were published in a report for the Ontario Heritage Foundation (Reading 2001). Out of two aggregate assemblages, the one dated from c. 1810 to c. 1860 was chosen for this study. It covers a period of time when the

[1] Estate files for Jonathan Ashbridge, probated 1845, York County Surrogate Court estate files, RG 22-305, Microfilm MS 638, Reel 73, Archives of Ontario.

Ashbridge farm was developing from subsistence to more commercial farming as the city of Toronto grew closer.

2.2.1 Quantitative methods

Quantitative methods used for this analysis focused on measuring the reliance on pigs as opposed to other meat sources. To do this we will use relative measures of abundance. Quantification of faunal remains is ordinal, not absolute. It is useful for measuring relative amounts of taxa in an assemblage, but it cannot give a definite total of meat from each species (Bowen and Manning 1994:4). There are several different methods of quantifying relative abundance, and each has its advantages and disadvantages. The most commonly used are Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI).

NISP is simply the number of bone fragments identified for each species. It is a straightforward, easy method that gives a rough idea of the dietary contribution of different taxa, but has two main disadvantages: it doesn't take into account that fragments of bone could be from the same element, and it tends to over-represent larger taxa, since the bones of larger animals may be more prone to fragmentation through butchery or other taphonomic processes (Bowen and Manning 1994:5; Davis 1987:36; Grayson 1984; Reitz and Wing 1999:191). Whole carcasses will inflate the NISP of a species. Also, some animals such as fish have more bones than other animals, which could conceivably lead to an overrepresentation of these species (Bowen and Manning 1994:5). MNI compensates for these disadvantages by measuring the minimum number of individuals of each species based on the most numerous element of each (e.g., left

humerus). Ideally, possible interrelationships between fragments and differences in size, age and sex are considered (Bowen and Manning 1994:6; Davis 1987:36). However, using MNI as the main measure of relative abundance in terms of diet assumes that the entire animal was consumed. For historic sites this is most likely an incorrect assumption, especially if the site occupants participated in a social exchange network or in a market economy. MNI also tends to overinflate the importance of less common species (Bowen and Manning 1994:6; Brown and Bowen 1998:74). For instance, one identified bone of a species in an assemblage of several hundred fragments would give that species an MNI of one. Another species in the same assemblage may also have an MNI of one, yet be represented by several bones.

Another measure called Minimum Number of Elements (MNE) is potentially more accurate than NISP or MNI because it considers the number of discrete elements identified for each species, rather than fragments or individuals. MNE is often calculated incidentally when determining MNI. The highest MNE, when sorted by size and other factors, may determine the MNI for a species. MNE is generally used separately when body part representation forms part of the project design (e.g., James 1997).

In terms of dietary abundance, NISP, MNI and MNE still do not consider the effect of size differences on the quantity of meat provided by different animals. Two methods that do consider this are meat weight and biomass. Using the meat weight method as describe by White (1953) involves multiplying the MNI for each species by the estimated weight of meat an average individual of that species provides. Its reliance on MNI carries over the main weakness of that method: it assumes that the entire

animal was consumed. Also, the values for "edible" meat may be incorrect if based on our own cultural ideas of what parts of an animal are edible (Lyman 1979:539). For instance, heads, which are often interpreted as butchering waste, were frequently consumed and are present in every 17th and 18th century faunal assemblage from American sites (Bowen and Manning 1994:1; Landon 1996:68). They were often eaten by wealthy households as a delicacy (Bowen 1992:275).

Biomass solves these problems by using the allometric relationship between bone and soft tissue weights of animals. All identified bones are weighed and the total weight for each species is input into a linear regression formula using standard variables for different types of animal (see Reitz and Wing 1999:72). This provides a fairly accurate estimate of soft tissue weight, which allows for only portions of animals being present in the assemblage (Reitz and Wing 1999:224, 227). The accuracy of this measure depends on having the correct weight for historic animals, as biomass factors are based on modern specimens. Biomass should nevertheless be accurate in terms of relative weights of different domestic species, as all modern domestic species are generally larger than historic ones.

Body part representation was calculated for the two most abundant dietary species in the Ashbridge assemblage: cow and pig. This type of analysis is often used to assess the quality of meat represented in the assemblage and to get around the problem of differential fragmentation (Landon 1996:47). However, this measure is affected by the "bacon factor" – cuts of meat such as bacon or sausages that would have been boneless won't be visible in the archaeological record (Crader 1990:699, 713).

2.2.2 *Other Assemblages*

Faunal analyses of other early Ontario historic sites will be included. The limitations on this aspect of the study are several. First, the number of Ontario historic sites that have had faunal remains analyzed is limited. Many pioneer sites have been absorbed by growing urban environments or have been subject to plowing. Both of these activities have disrupted or obliterated the archaeological record, or have made excavation a practical impossibility. Many faunal reports are the result of salvage excavations and remain unpublished. However, it was possible to obtain access to some reports, which provided a good representation of analyzed Ontario sites.

Because of the different methods of quantifying relative abundance, a major problem when comparing site assemblages is which methods were used. Ideally, different measures are calculated for the same assemblage and then compared (Bowen and Manning 1994:5, Cleland 1970; Reading 2001). The Ashbridge Estate assemblage was analyzed by the author using several measures of relative abundance: NISP, MNI, MNE, bone weight and biomass. When NISP and MNI are compared to biomass for the same sample, a very different story of relative abundance may be evident. Unfortunately, biomass is not yet widely used in Ontario zooarchaeological reports – possibly due to its relative newness. This has made it necessary to use NISP and MNI (if provided) for comparative purposes, thereby increasing the potential margin of error. As the only option for converting reported data to biomass (obtaining and weighing all identified bones) was not practical for this study, the comparative data was included anyway, and based on comparisons of NISP and MNI.

Some other potentially limiting factors must be kept in mind. For instance, different analysts have different levels of experience, different approaches, and biases that affect the number of identified bones (Lyman 1994:51). Since the focus of this study is on one species, pig, in relation to others, there are also some taphonomic factors that have to be considered. Specifically, pig bones, being from a somewhat smaller animal than those of cattle, may survive in a more identifiable condition. They required less butchering and their compactness relative to those of cow makes them less prone to fragmentation after deposition. Pig teeth are especially strong and diagnostic and may artificially inflate measurements of NISP, biomass and head representation (Reitz 1987:103; Landon 1996:47).

There may also have been significant differences in taphonomic processes at each site. Because we are looking at relative rather than absolute quantities this may not present an insurmountable problem – *if* we can assume that all bones within a particular assemblage were subject to more or less the same taphonomic processes. Sample size for different assemblages poses a more serious problem. While Amorosi et al. (1996) have determined that medium-sized samples of 300-500 bones are adequate for certain research questions, including taxonomic distribution, very few of the comparative assemblages contain that many identified bones. Recovery techniques can also make a difference in the taxa and elements recovered. In all of the sites considered here, one-quarter inch screening was used. This is standard archaeological practice, but a smaller mesh size may have recovered more tiny bones. Flotation was not done, which may cause the number of fish and small mammal and bird species to be underestimated (Bowen and Manning 1994:4).

Sites closer to the United States in the Lower Great Lakes region were settled earlier; sites further away may have been settled more than half a century later. As this study is not concerned so much with a particular time period as with the process of settlement in the province, this results in a broad date range for the comparative assemblages, from 1783 to 1870. This covers the period of the Ashbridge assemblage considered in this study (c. 1810 to 1860). The assemblages considered represent:

- a bush farm, c. 1833/34 to c. 1860;
- three farms settled by Americans, c. 1783-1834 and c. 1820-1870;
- a farmstead and general store settled by Scots, c. 1788-1850;
- a farmstead occupied by a British military family, 1835-1857.

CHAPTER III
ZOOARCHAEOLOGICAL ANALYSIS

The faunal assemblage which forms the basis of this study is from the cellar area of the Ashbridge Estate. It has been dated from c. 1810 to c.1860 by artifact analysis (Doroszenko pers. comm.). This coincides with the occupation of the frame house and thus represents a second stage of settlement, that of an "early" but not strictly "pioneer" farmstead.[2] Detailed information on these remains is available in a separate report (Reading 2001).

The sample from this context consists of 1,181 fragments and weighs 5.5 kg. Identification to class was possible for 92% of the sample. Identification beyond class was possible for 379 pieces (32%). This is most likely a "secondary deposit" as defined by Landon (1996:6), as the material appears to have been moved directly into the cellar from the area in which it was originally processed. Except for the cutting of a well through part of it sometime after the cellar was filled, and slight disturbance by a test trench in 1988, the deposit was not disturbed until excavation (Latta 2000). There is evidence that the log house may have been used as an outbuilding, possibly a summer kitchen, during the occupation of the frame house (Doroszenko pers. comm.).

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[2] There is another aggregate assemblage from the same area of the site, which dates from the late 19th century to the early 20th century. It is a "tertiary" deposit of fill (see Landon 1996:6) and is of uncertain provenience. This assemblage was also analyzed by the author but is not included in this study (Reading 2001).

The condition of the bones is generally very good in that they exhibit very little evidence of weathering, root etching or chemical interference. However, frequent signs of rodent gnawing, along with evidence of burrows found during excavation (Suboperation summaries 1999-2000) and the presence of many immature rat bones indicate that a thriving colony of Norway rats (*Rattus norvegicus*) once existed in the cellar area. This suggests that organic refuse was left unburied for some time after disposal. As there was little evidence of weathering it is possible that the bones were somehow shielded from the elements until burial. Rodent gnawing was identified on 52 specimens in the sample. Rats may have moved some bones among contexts, which complicates any attempt to isolate smaller, more tightly-dated aggregates.

There is also evidence of carnivore gnawing on 34 specimens, which is most likely by dogs (see Haynes 1983). Three carnivore elements were identified in the sample, including one juvenile element. These may represent dog/puppy burials. It is likely that the Ashbridges kept at least one dog throughout the operation of the farm. These bones may have been gnawed before they were deposited in the cellar.

3.1 Taxonomic Distribution and Relative Abundance

Table 1 shows the taxa represented in the sample, along with four measures of relative abundance: Number of Identified Specimens (NISP), Minimum Number of Individuals (MNI), Minimum Number of Elements (MNE), and bone weight. Biomass values are shown in Table 2, as they were not calculated for every individual species. The tables show that the majority of the identified assemblage consists of domestic mammals, particularly pig and cow. By analogy, the bulk of the unidentified medium

and large mammals are likely also pig and cow. Relatively few wild specimens were identified, consisting mainly of wild duck. As discussed above, the Norway rat specimens are considered commensal and not dietary remains.

3.2 Domestic Animals

Pig (*Sus scrofa*)

Pig bones are ubiquitous throughout the lots contained within the assemblage. They represent the largest number of specimens (138) and highest minimum number of individuals (8) of the probable dietary species. At least four females and two males were identified, based on sexing of canine teeth. A range of ages was determined using information from tooth eruption and epiphyseal fusion of bones (Bull and Payne 1982; Hillson 1986; Reitz and Wing 1999; Silver 1969). At least one individual of 2-3 months and at least three individuals between 16-22 months old were identified (based on tooth eruption). Based on epiphyseal fusion, at least two individuals were under one year old and at least one pig was aged over three years. The fact that a range of ages is present suggests that some pigs were slaughtered before or allowed to live beyond the optimum age for slaughter, which is generally considered to be before 18 months (Bowen 1975:157; Landon 1996:114). This suggests a breeding population. We know from records of livestock marks in York Township that the Ashbridge brothers were raising

TABLE I

IDENTIFIED TAXA & RELATIVE ABUNDANCE IN

THE ASHBRIDGE ESTATE ASSEMBLAGE (c.1810-1860)

Taxon	NISP	% of Total	MNI	% of Total	MNE	% of Total	Skeletal Weight (g)	% of Total
MAMMALS								
Cow	37	2.56	3	4.23	35	10.94	2219.32	41.96
Pig	138	9.56	8	11.27	119	37.19	1125.25	21.28
Sheep/Goat	13	0.90	2	2.82	13	4.06	87.67	1.66
Sheep	2	0.14	-	-	-	-	53.36	1.01
White-tailed deer	19	1.32	1	1.41	19	5.94	146.47	2.77
Unidentified artiodactyl	2	0.14	1	1.41	1	0.31	2.63	0.05
Carnivore species	2	0.14	1	1.41	2	0.62	0.67	0.01
Dog/wolf	1	0.07	1	1.41	1	0.31	0.55	0.01
Norway rat	56	3.88	11	15.49	51	15.94	15.25	0.29
Chipmunk	1	0.07	1	1.41	1	0.31	1.21	0.02
Eastern grey squirrel	2	0.14	1	1.41	2	0.62	1.07	0.02
Muskrat	1	0.07	1	1.41	1	0.31	1.73	0.03
Small mammal	9	0.62	-	-	-	-	3.19	0.06
Medium mammal	140	9.69	-	-	-	-	346.42	7.55
Medium or large mammal	177	12.26					429.9	8.13
Large mammal	49	3.39			-	-	500.95	9.47
Unidentified mammal	89	6.16		-	-	-	77.35	1.46
Total mammal	**738**	**51.11**	**31**	**43.68**	**245**	**76.55**	**5012.99**	**94.78**
BIRDS								
Unidentified bird	164	11.36	-	-	-	-	38.95	0.74
Unidentified duck	12	0.83	-	-	-	-	5.44	0.10
Unidentified surface-feeding duck	4	0.28					1.35	0.03
Pintail	2	0.14	2	2.82	2	0.63	1.10	0.02

Taxon	NISP	% of Total	MNI	% of Total	MNE	% of Total	Skeletal Weight (g)	% of Total
BIRDS (cont'd)								
Green-winged teal	2	0.14	1	1.41	2	0.63	1.30	0.02
Blue-winged teal	1	0.07	1	1.41	1	0.31	0.57	0.01
Unidentified diving duck	2	0.14	-	-	-	-	1.26	0.02
Greater scaup	1	0.07	1	1.41	1	0.31	1.42	0.03
Common goldeneye	2	0.14	1	1.41	2	0.63	1.52	0.03
Hooded merganser	2	0.14	1	1.41	2	0.63	1.02	0.02
White-winged scoter	2	0.14	1	1.41	2	0.63	1.25	0.02
Chicken	40	2.77	9	12.68	38	11.88	55.86	1.06
Ruffed grouse	4	0.28	3	4.23	4	1.25	2.45	0.05
Passenger pigeon	2	0.14	2	2.82	2	0.63	1.13	0.02
Total bird	**240**	**16.62**	**22**	**30.99**	**56**	**17.53**	**114.62**	**2.17**
FISH								
Unidentified fish	16	1.11	-	-	-	-	3.12	0.06
Walleye	1	0.07	1	1.41	1	0.31	0.74	0.01
Pumpkin-seed	4	0.28	2	2.82	4	1.25	0.62	0.01
Smallmouth bass	1	0.07	1	1.41	1	0.31	0.13	0.00
Pike species	1	0.07	-	-	-	-	0.97	0.02
Northern pike	1	0.07	1	1.41	1	0.31	1.23	0.02
Total fish	**24**	**1.66**	**5**	**7.05**	**7**	**2.19**	**6.81**	**0.13**
AMPHIBIANS								
Unid. amphibian	1	0.07	-		1	0.31	0.1	0.00
American toad	1	0.07	1	1.41	1	0.31	0.08	0.00
Frog species	1	0.07	1	1.41	1	0.31	0.13	0.00
Total amphibians	**3**	**0.21**	**2**	**2.82**	**3**	**0.94**	**0.31**	**0.01**
MOLLUSKS								
Unidentified bivalve	2	0.14	1	1.41	1	0.31	6.53	0.12
Freshwater clam	3	0.21	3	4.23	3	0.94	3.41	0.06
Eastern oyster	8	0.55	6	8.45	7	2.19	144.18	2.73
Total mollusks	**13**	**0.90**	**10**	**14.09**	**11**	**3.44**	**154.12**	**2.91**
GASTROPODS								
Snail	**1**	**0.07**	**1**	**1.41**	**1**	**0.31**	**0.06**	**0.00**
TOTAL	**1444**	**100.00**	**71**	**100.00**	**320**	**100.00**	**5288.91**	**100.00**

TABLE II
RANKED BIOMASS VALUES FOR ASHBRIDGE ESTATE ASSEMBLAGE
(c.1810-1860)

Species	Skeletal weight (g)	Biomass (kg)	% of total biomass	% of probable food species
Cow	2219.32	27.01	39.35	40.69
Pig	1125.25	14.66	21.35	22.10
Large mammal	500.95	7.08	10.31	10.67
Med/large mammal	429.90	6.17	8.98	9.30
Medium mammal	346.42	5.08	7.49	7.66
White-tailed deer	146.47	2.34	3.41	3.53
Sheep/Goat	87.67	1.47	2.15	2.22
Unidentified mammal	77.35	1.32	1.92	-
Sheep	53.36	0.94	1.37	1.42
Chicken	55.86	0.79	1.16	1.20
Unidentified bird	38.95	0.57	0.83	-
Norway rat	15.25	0.31	0.45	-
Duck	16.23	0.26	0.38	0.39
Small mammal	3.19	0.07	0.11	-
Unidentified fish	3.12	0.07	0.11	0.11
Unidentified artiodactyl	2.63	0.06	0.09	0.09
Pike	2.3	0.06	0.08	0.09
Ruffed grouse	2.45	0.05	0.07	0.07
Muskrat	1.73	0.04	0.06	0.06
Chipmunk	1.21	0.03	0.05	-
Unidentified bivalve	6.53	0.03	0.05	0.05
Eastern grey squirrel	1.07	0.03	0.04	0.04
Easter oyster	144.18	0.03	0.04	0.04
Carnivore species	0.67	0.02	0.03	-
Passenger pigeon	1.13	0.02	0.03	0.03
Walleye	0.74	0.02	0.03	0.03
Pumpkinseed	0.62	0.02	0.03	0.03
Freshwater clam	3.41	0.02	0.03	0.03
Dog/wolf	0.55	0.02	0.02	-
Smallmouth bass	0.13	0.01	0.01	0.01
Amphibians	0.31	0.01	0.01	-

swine at least as early as 1797 (Taylor 1986:25).

Cow (*Bos taurus*)

Although the number of identified cow specimens was only 37, based on biomass it is by far the most abundant meat species. A calf aged from approximately five to 16 months was identified by tooth eruption in a mandible (Andrews 1982:21). At least one cow aged over three and a half years old is indicated by a fully fused proximal femur). Two specimens, a metacarpal and a metatarsal, could be sexed using osteometrics (see Gilbert 1990:63; Grigson 1982:8). Both were from adult females, possibly cows originally used for dairy, although there was no indication of pathology such as osteoarthritis that might indicate advanced age.

Sheep (*Ovis aries*) or Goat (*Capra hircus*)

Distinguishing sheep and goat bones can be difficult or impossible, as the two species are osteologically very similar (see Boessneck 1969; Prummel and Frisch 1986; Rowley-Conwy 1998), which has led to the notorious zooarchaeological concept of "sheep/goat". Two elements in the sample could be definitely identified as sheep, while another 13 could be either sheep or goat. At least two individuals, one aged over three years and one under two years, are indicated based on epiphyseal fusion. No sex could be determined. The osteology of the sheep specimens indicates a more gracile breed than that of the modern comparative specimens. Many of the sheep in early Upper Canada had significant amounts of Merino blood (Jones 1942:152-153).

Chicken (*Gallus gallus*)

Chicken represented 52.6% of identified avian specimens by NISP. By comparison with eggshells of various birds, eggshell fragments in the sample were also determined to most likely be those of chickens. Most rural and many urban households kept chickens, even in the earlier 20th century. The chicken bones in the sample show a range of sizes and therefore possibly breeds, however most were smaller than modern Leghorn specimens in the comparative collection. Chickens provided an important source of protein in the form of both eggs and meat. In the early 19th century, specialized breeding for one or the other had not yet been developed (Jones 1942:155). Young roosters and hens past laying were typically stewed, while productive hens were kept for their eggs.

3.3 Wild animals

White-tailed Deer (*Odocoileus virginianus*)

The remains of at least one deer individual were identified. All but one element is from a lower hind leg, which may have been butchering refuse as little meat would have been obtained from this area. Deer are common throughout southern Ontario and prefer areas of light or secondary growth to dense forest. High concentrations of deer have been known to occur in fairly thickly settled country (Peterson 1966:324). They are present year-round.

Possible meat mammals

One muskrat mandible, two grey squirrel bones, and one chipmunk humerus

were identified. There are no cut marks on these bones to indicate whether they were used for their pelts and/or for food. Muskrat and squirrel were eaten occasionally by settlers (see Robertson 1911:131), but the size of a chipmunk might preclude its being hunted, as it would not provide much meat. All three species are active year-round in southern Ontario (Peterson 1966). Peter Kalm, a Swedish traveler in 18th century Pennsylvania, noted that the squirrel population was increasing due to the cultivation of corn, which was their favorite food (Benson 1987:171).

Wild birds

A wide variety of waterfowl lived for at least part of the year in the marshes of Ashbridges Bay. Family tradition held that when the Ashbridges first approached their property by boat, "someone in the party blew a blast on a big shell...and the ducks flew up in thousands at the sound" (Ashbridge 2000[1906]:79). Another local settler named Bouchette, who had surveyed the area in the previous year, recorded that "the waterfowl were so numerous as to be an annoyance at night" (ibid.). Of the specimens identified as Anatidae (duck family), 60% could be further identified to genus or species. At least seven wild species are represented, all of which could have been either migratory or summer residents in the area (Godfrey 1986). As no specimen could be identified as mallard (*Anas platyrhynchos*), which is the same species as domestic duck (Bowen and Manning 1994:9.16; Landon 1996:44; Sarjeantson 2000:182), these duck remains are likely the results of hunting and would have added some variety to the Ashbridges' diet.

Hunting activities would have also provided the minimum of three ruffed grouse (*Colinus virginianus*) identified in the sample. They would have been present in the area

year-round (Godfrey 1986:161). Two humerii of passenger pigeon (*Ectopistes migratorius*), representing two individuals, were also identified. Passenger pigeon bones are typically found on early to mid-nineteenth century sites in the Northeast. These birds were easily hunted to extinction due to their habit of roosting in large numbers. The last known individual died in 1914 (Godfrey 1986:301).

Given the site's former proximity to water, surprisingly few fish remains were identified. These include four species representing a minimum of five individuals. All four species would have been available in Ashbridges Bay (McClane 1974). Eastern oyster (*Crassostrea virginica*) and freshwater clam were also represented in the sample. While clams could have been obtained from the nearby lake, oysters are ocean shellfish and may have been purchased in town.

Commensal mammals

Norway rats (*Rattus norvegicus*) are common in North American historic sites and were transported from Europe on ships, spreading inland from port cities as settlement expanded (Cronon 1983:154). In Ontario, their range increased northward with the introduction of trains (Peterson 1966:174). They are never far from human habitation and prefer to nest in old dumps, grain stores, warehouses and under buildings. The presence of a rat colony may be seen as further evidence that the log house still stood over the cellar during the occupation of the frame house. No signs of trauma were found on any of the rat bones in the sample, but at least one adult rat suffered from periodontitis, which may indicated advanced age.

One element of a house mouse (*Mus musculus*) was also identified. As its name suggests, the house mouse prefers to live in buildings, but in summer may move into nearby fields if food is available (Peterson 1966:178).

3.4 Butchering marks

Pig: Only nine pig specimens in the sample bear evidence of butchering. Scrapes on the interior of a mandible may indicate preparation of headcheese, as might a cut on another mandible. One femur shaft shows a cut mark. One tibia and one rib show definite spiral fracturing, while three elements, a lumbar vertebra, a scapula and the shaft of a humerus were hacked. The only evidence of sawing on a pig bone is on a humerus, where a handsaw as opposed to a mechanized saw appears to have been used.

Cow: The cow specimens show more butchery marks than those of pig. This is understandable, since cows are larger animals and require more restructuring to meet market demand. Most of these marks are vertical divisions through vertebrae, dividing them into two halves. This represents primary butchery, when the carcass is sawn into two halves after the head and lower extremities have been removed (Mettler 1986). The cuts are clean and where saw grooves can be discerned they are very fine, suggesting that use of a mechanical saw. A saw was also used on a tibia to cut through the shaft transversely, and on the distal end of a rib. The shaft of a femur appears to have been very roughly sawn through with some other cutting tool, perhaps a knife. Spiral fractures are obvious on a radius and humerus as well as on the roughly sawn femur shaft, suggesting marrow extraction.

Sheep/Goat: There is one deep cut on an ilium, and one lumbar vertebra is vertically sawn, likely from primary division of the carcass. The two definite sheep specimens both bear cut marks, and a radius is hacked through near the proximal end.

Unidentified large mammal: Many rib fragments could not be positively identified to species but based on size are most likely cow. Several of these bear evidence of sawing, perhaps for rib roasts.

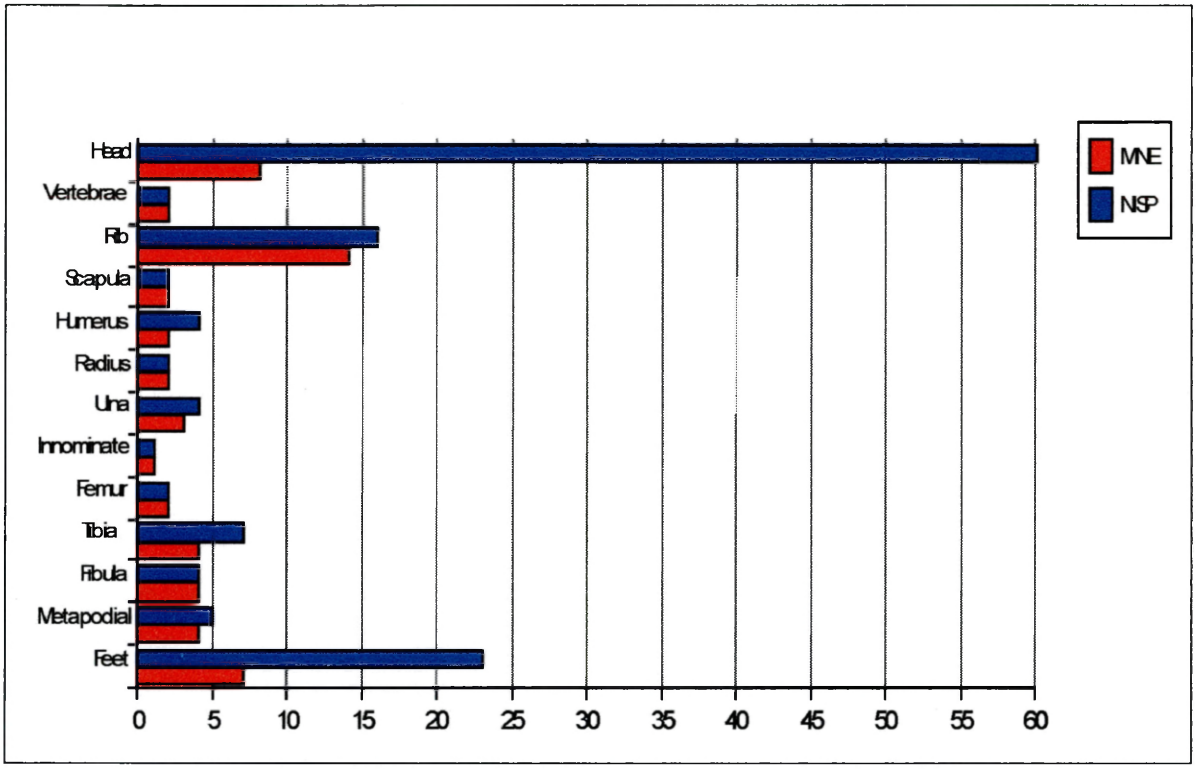
3.5 Skeletal Representation of Pig and Cow

The body part representation gives yet a different perspective on the relative abundance of the two most important species in the assemblage, cow and pig. This measurement is a guideline only, keeping in mind that meatier portions of animals may have contained fewer or no bones (e.g., bacon). Body part representation is also strongly influenced by the degree of post-depositional destruction (Landon 1996:46). This means that larger, less compact elements may be fragmented beyond identification and thus be under-represented in terms of identified body parts. There is a large amount of unidentifiable flat bone in the Ashbridge Estate assemblage. This could represent the scapulae, innominates or crania of cows or perhaps larger pigs.

Figure 4 shows the distribution of identified pig specimens in relation to the whole skeleton and in terms of MNE and NISP. Figure 5 shows the recovery rate, or ratio of observed to expected elements based on MNI (Landon 1996:47; Reitz and Wing 1999:208-211). Although pig has the highest NISP, the head and feet together account for the majority of specimens (60%) and teeth alone account for 36%. However, the

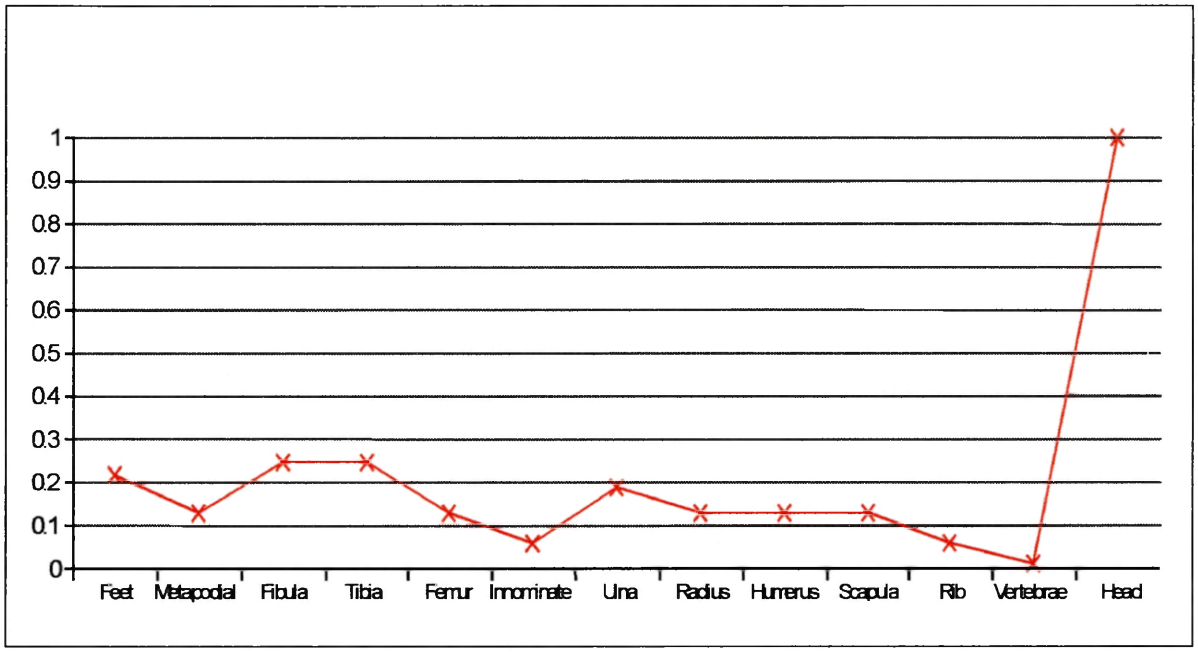
feet and head, when considered as discrete parts of the body, contain many elements. This is also true of the ribcage area. Thus the distribution by MNE is also shown. Note that the head, ribcage and feet are the most abundant areas in terms of identified specimens. Shoulder and loin areas, which would indicate hams, are not well-represented. Figure 6 shows the distribution of identified cow specimens in terms of body part by MNE and NISP, and Figure 7 shows the recovery rate. The NISP for cow is considerably less than that of pig, therefore sample size may make conclusions more tentative. Although the recovery rate for heads was high, proportionately fewer tooth and cranial specimens were identified as cow. This suggests less processing of cow was going on at the site.

FIGURE 4



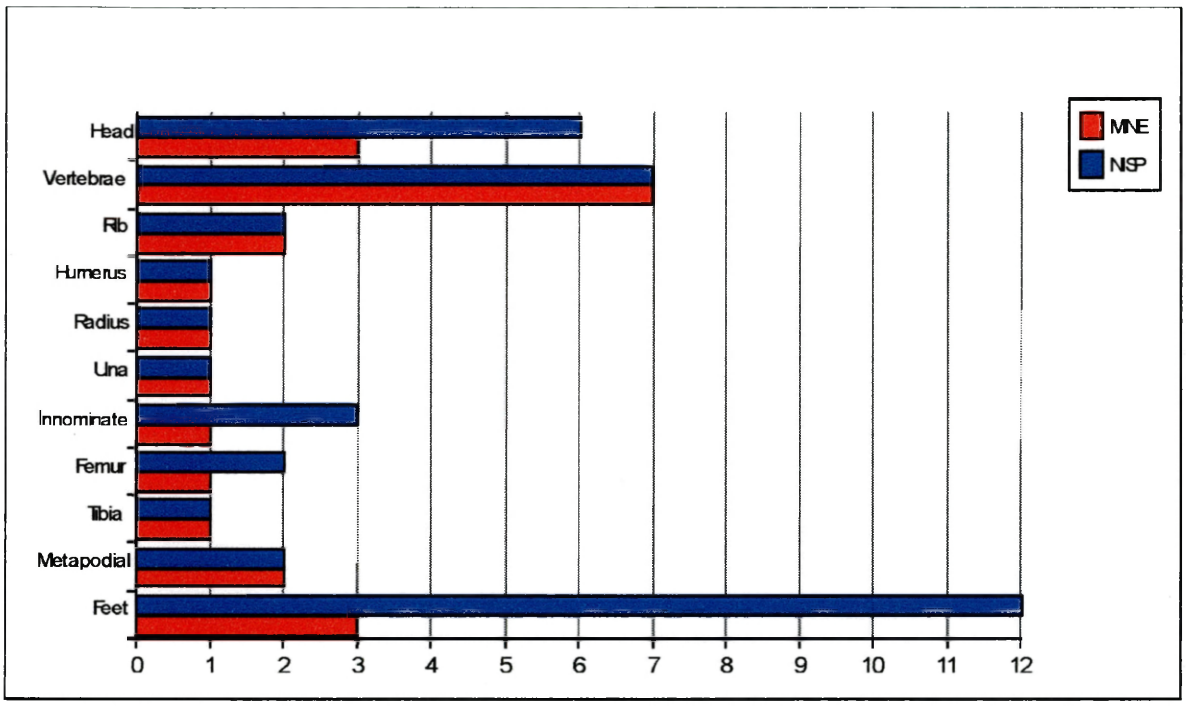
% BODY PART REPRESENTATION OF IDENTIFIED PIG SPECIMENS IN THE ASHBRIDGE ASSEMBLAGE (c. 1810-1860)

FIGURE 5



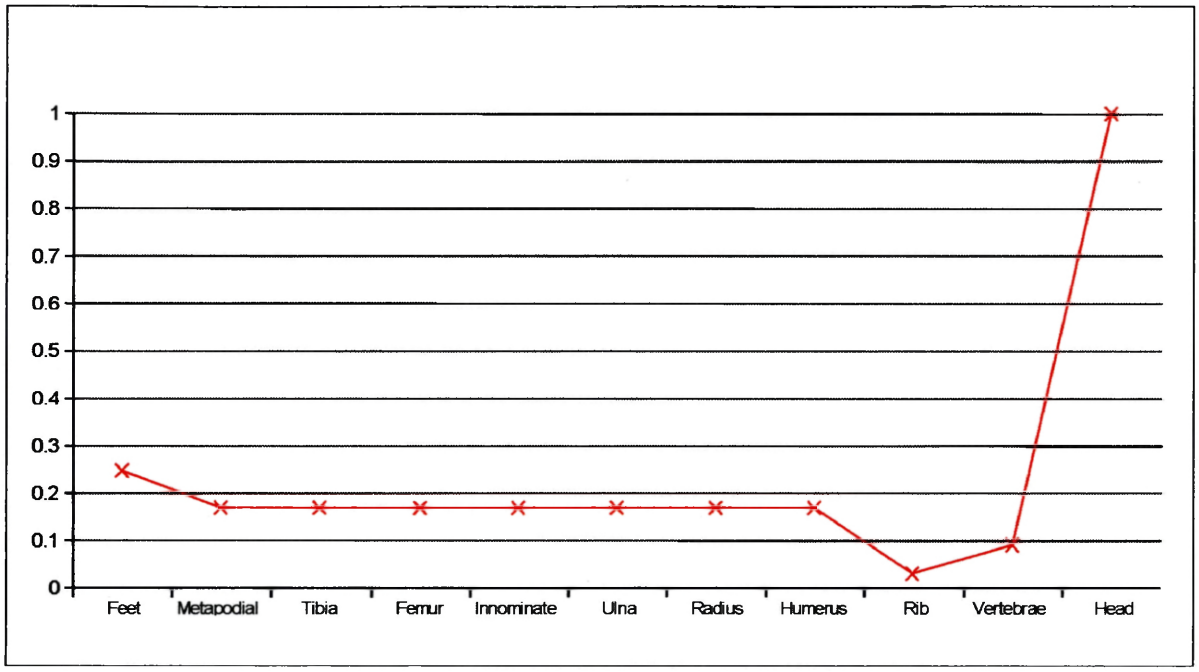
% RECOVERY RATE FOR PIG BODY PARTS (MNE/EXPECTED # BY MNI)

FIGURE 6



% BODY PART REPRESENTATION OF IDENTIFIED COW SPECIMENS IN THE ASHBRIDGE ASSEMBLAGE (c. 1810-1860)

FIGURE 7



% RECOVERY RATE FOR COW BODY PARTS (MNE/EXPECTED # BY MNI)

3.6 Zooarchaeological Data from Other Sites

In order to see how the data from the Ashbridge Estate cellar assemblage compares with early 19th century farm sites in general, faunal reports for other historic Ontario sites were consulted. The limitations on this aspect of the study were discussed in Chapter Three. Perhaps the most paramount are the quantification methods used by different analysts. The sites and contexts chosen for comparison were:

- The Lampman Site (AhGx-96), c.1820-c.1870, a farmstead near Hamilton, Ontario (Thomas 1987).
- The Moodie Farmstead (BcGn-9), 1833/34-c.1860, a "bush" farm near Lakefield, Ontario (James 1997).
- The Bethune-Thompson House (BgFp-39), 1783-1834, a farmstead in Williamstown, Ontario (Black 1989).
- The Macdonell Site (BjFo-2), 1788-1850, a farmstead in Point Fortune, Ontario (James 1993).
- The Benares Site (AjGv-30), 1835-57, a farmstead in Mississauga, Ontario (James 1994).
- The Barnum House Site (AlGm-6), early 1800s – 1860, a farmstead near Grafton, Ontario (Prevec 1982).

Although the assemblages span a wide date range (1783-1870) they represent the evolution of a farm from early subsistence to limited commercialization. Three of the sites were settled by American immigrants, as was the Ashbridge Estate: Barnum House, the Bethune-Thompson House and the Lampman farm. The Benares Site was

home to a military British family. The Macdonell site was settled by Scots in the early years after the American Revolution. The most remote site, the Moodie Farmstead, was the home of writer Susanna Moodie, whose Roughing it in the Bush (1989[1852]) and Life in the Clearings versus the Bush (1989[1854]) became best-sellers in her native England in the mid-nineteenth century.

3.6.1 The Lampman Site

At the Lampman Site, archaeologists were able to divide the contexts into three time periods by artifact analysis. Unfortunately, each smaller aggregate then contained a small sample size – this was because only a portion of the entire sample has been analyzed. However, a possible trend was identified. In the earliest context, pig accounted for 46% of NISP and cow for only 2.7%. No sheep or goat were identified. Other species identified in the site were chicken, passenger pigeon, goose, duck and squirrel. In the next context in time, pig still remained high at 43.5% but cow was now at 19.6% of NISP and sheep specimens accounted for 17.4%. In the latest context the relative quantities for pig and cow remained stable but goat was also identified in the sample. Thomas noted that body part representation of pigs shifted in time as well: meatier portions (such as the loin chop and fatback area) were represented in the earlier context; in the later contexts the pig bones represented intermediate-quality cuts such as the shoulder and shoulder butt. No femur or proximal pelvic limb bones were identified in any of the contexts, which suggested to Thomas that hams were being exchanged and not consumed. The preponderance of pig in the early context and the presence of juvenile pigs pointed towards an "early" stage of farming in which pigs were the primary livestock (Thomas 1987:16).

3.6.2 The Moodie Farmstead

In contrast to the Lampman Site assemblage, the Moodie Farmstead (1833/34-1860) provided a large sample of 2,796 identifiable faunal specimens. It is also the only site in this study that did not have easy access to a market, the nearest one being in Peterborough, a journey of one to two days in good conditions.

James identified a diverse representation of taxa, including pig, cow, sheep, deer, moose, black bear, raccoon, squirrel, woodchuck, rabbit, beaver, muskrat, marten, skunk and otter as well as chicken, turkey, duck and fish. This diversity correlates well with bush farm subsistence as described by Susanna Moodie in her books (1989[1852]; 1989[1854]). The highest NISP and MNI of probable dietary animals were for pig (24% of NISP and 9% of MNI). Cow bones provided 13% of NISP and sheep provided 7%. Deer provided 7%. The recovery rate of cranial or teeth fragments is low. The pig specimens that could be aged showed that most were young, and some were slaughtered before their prime. However the sheep remains showed an older population, suggesting that they had been kept mainly for wool rather than meat. Butchering patterns on cow specimens were fairly complex, suggesting that a more experienced butcher than the Moodies had processed the carcasses (James 1997). This may indicate meat that was purchased.

3.6.3 The Bethune-Thompson House

In a sample dating from 1783-1834, archaeologists were able to discern three aggregates, however as with the Lampman Site this rendered the sample sizes very small. The earliest (1783-1802) consisted of sheep, pigs, chickens and an unidentified

large mammal that Black suggested might be cow. The sample dated from 1802-1815 showed cattle, sheep, pigs, chicken, fish and mussels, while that dated 1815-1834 showed mainly the same taxonomic distribution but with evidence of oysters instead of mussels. Oysters indicate participation in a market economy, since they were not locally available. There was little evidence in any of the contexts of use of wild foods. Cattle and sheep were butchered while immature, but pigs appear to have been allowed to reach maturity (Black 1989).

3.6.4 The Macdonell Site

This site consisted not only of a farm context, but that of a market as the occupants also ran a general store. In one aggregate context of 1788-1850, there were 517 identifiable specimens. Pig specimens accounted for the highest NISP at 21.5%, while sheep and cow NISPs were similar at 14.1% and 15.4% of total respectively. One goat specimen was identified. Chicken, turkey, wildfowl, eight species of fish and oysters were also identified in the sample. James interpreted the fairly complex butchering patterns and the low representation of cow pelvic portions as evidence that the Macdonells were selling prime meat choices in their store (James 1993).

3.6.5 The Benares Site

In a sample of 517 identifiable specimens (1835-1857), James concluded that sheep represented by far the highest taxon in terms of abundance, at 48.9% of total NISP. In contrast, cow represented only 4.1% of total NISP, and pig 5.8%. Chicken was also abundant, as was rabbit. Turkey, duck, goose, and passenger pigeon were also identified. Butchering patterns were fairly complex and livestock, including sheep, were

generally slaughtered in their prime. Meatier portions of pigs and cows were well-represented, whereas body part representation of sheep was more evenly distributed (James 1993).

3.6.6 Barnum House

At this site (c.1800-1860), by far the largest portion by NISP in all time periods was pig, however cow was also present. Sheep appears in the earlier contexts. Chicken is abundant and there were specimens of deer and grouse. One fetal calf bone was identified in a context dating towards the end of the range of 1840-1860, suggesting that cattle were being raised at that time. The age of pig and sheep specimens indicates that they were slaughtered at their prime of about one to one and a half years (Prevec 1982).

3.7 Summary

Faunal assemblages from six other historic Ontario sites have been compared to that of the Ashbridge site. Table 3 provides a summary of the relative quantities of different species in all of the sites discussed in this chapter. NISP had been calculated for all assemblages, however MNI was not calculated for three.

TABLE 3
RELATIVE SPECIES ABUNDANCE IN SELECTED HISTORIC ONTARIO FAUNAL ASSEMBLAGES[3]

Site	Date of Assemblage	Species	NISP (%)	MNI (%)	N =
Ashbridge Estate (AjGt-1)	c. 1810-1860	Pig	43.3	18.2	138
		Cow	11.8	6.3	37
		Sheep/goat	4.8	4.6	15
		Domestic fowl	12.7	20.5	40
		Wild species	26.7	50.0	84
Barnum House (AlGm-6)	c. 1800-1860	Pig	23.3	-	50
		Cow	5.2	-	11
		Sheep/goat	6.6	-	14
		Domestic fowl	56.6	-	119*
		Wild species	7.5	-	16
Benares Site (AjGv-30)	1835-1857	Pig	6.5	5.6	27
		Cow	4.6	5.6	19
		Sheep/goat	55.3	22.2	226
		Domestic fowl	8.4	27.3	34
		Wild species	24.4	27.3	99*
Bethune-Thompson House (BgFp-39)	1783-1834	Pig	26.3	-	7
		Cow	23.0	-	6
		Sheep/goat	26.3	-	7
		Domestic fowl	11.5	-	3
		Wild species	11.5	-	3
Lampman Site (AhGx-96)	c. 1820-1870	Pig	49.5	-	70
		Cow	12.8	-	18
		Sheep/goat	6.4	-	9
		Domestic fowl	20.6	-	29
		Wild species	10.6	-	15
Macdonell Site (BjFo-2)	1788-1850	Pig	26.3	5.4	84
		Cow	17.5	8.1	55
		Sheep/goat	19.6	5.4	61
		Domestic fowl	8.0	13.5	25
		Wild species	27.4	67.6	87
Moodie Farmstead (BcGn-9)	1833/34-1860	Pig	35.8	11.1	530
		Cow	19.3	9.3	286
		Sheep/goat	11.5	9.3	166
		Domestic fowl	8.4	14.3	128
		Wild species	23.1	55.5	334

[3] Includes probable dietary species only.
* Includes animal burials (chickens at Barnum House, rabbits [possibly pets] at Benares)

CHAPTER IV
DISCUSSION

Despite the abundance of beef in these sites (and sheep at the Benares Site), documentary evidence shows a perception by settlers and travelers that pork was the "national dish" and was eaten *ad nauseum*. Thus there is a discrepancy between what is found in historic faunal assemblages and what the documents show. In order to gain useful information about the importance of pigs and pork in Upper Canada, perhaps we must look beyond simple relative dietary abundance. The importance of swine may have derived not solely from simple quantity relative to other food resources, but from other aspects of the animal and its meat, including practical, economic and ideological functions.

4.1 Results of Zooarchaeological Analysis

Taxonomic data from the Ashbridge site and other historic Ontario sites indicate that early Upper Canadian farmers subsisted overwhelmingly on domestic, not wild, animals, and that pork figured largely in most of their diets. Pig remains are ubiquitous in most sites studied, and there is also stronger evidence for pig raising at an early stage of settlement than for cattle or sheep raising, especially when more tightly dated aggregates were possible. However, it is also evident that cattle and sheep provided varying degrees of nutrition, as did wild game. The fact that NISP and MNI measures must be used to compare all seven assemblages introduces a question: if the relative

contribution by biomass were considered, would pork still appear to be the most abundant meat? Unfortunately, it is impossible to answer this without weight data.

The focus of this study is the Ashbridge Estate assemblage, which was analyzed by the author. Although pig bones are more ubiquitous throughout, cow far outweighs pig in terms of biomass. Bones identified as cow represent 41% of dietary biomass in the assemblage whereas those identified as pig represent a little more than half as much meat (22%). This shows the importance of biomass as perhaps the most accurate measure we currently have for relative dietary importance. If only NISP or MNI had been used, the conclusion would have been that pork was definitely the meat most eaten by the occupants of the site, based on this assemblage.

Very few wild examples of wild species were found in these assemblages, with the exception of that of the Moodie farmstead. This was the most remote site of all seven. We know from Susanna Moodie's books (Moodie 1989[1853]; 1989[1852]) that the family often had little food and ate deer, bear, squirrel, raccoon and other wild species on a regular basis. Sites with easier access to a market show more uniformity in the species consumed. Wild food forms an insignificant part of the diet at these sites. Given a choice, settlers preferred to invest their time in raising their own livestock rather than hunting for wild food.

Consideration of body part representation in the Ashbridge assemblage reveals that the majority of pig remains were from the head and the feet. This suggests that the outbuilding over the cellar may indeed have been a summer kitchen used for processing the marginal meat areas and that the cellar sample may include this processing waste as well as the remains of meals. Pigs' feet were often pickled, but meat could also be

scraped from them and the head to make headcheese. Another possibility to explain this abundance of certain parts is that teeth and foot bones simply survive better due to their compact structure and less exposure to fragmentation in the butchering process. Pig teeth are also extremely diagnostic, which would increase the number of specimens identified as pig (Landon 1996:47). Of the 60 identified head elements, 49 are teeth.

However, far fewer tooth and cranial specimens were identified as cow. This may be due at least in part to greater fragmentation, as cow crania are less compact than those of pigs, and cow teeth are not as diagnostic or compact as pig teeth. However, given the good state of preservation of teeth throughout the assemblage the simplest explanation, that more pig's heads found their way into the deposit than did cows' heads, is the most likely one. The presence of a juvenile cow mandible could be the result of either cattle raising on a limited scale (the Ashbridges would have kept dairy cows on their farm) or veal obtained by exchange.

4.2 Use of Documents

Clues to other aspects of pork and pigs may lie in other documentary sources. Ideological aspects of animals are not usually visible in the bones. Documentary sources therefore inform the archaeological record and add information to what the bones show about relative dietary importance. The pig has been an important animal for millennia. Montanari (1993:8) writes that if there were "plants of civilization" such as wheat for the Greeks and Romans, corn in the Americas, and rice in Asia, then the "animal of civilization" was the pig for Celtic and Germanic peoples. For them, as in North America, pigs were ideal livestock for farmers in forested areas where settlement

was just beginning. The pigs of early Upper Canada were hardy animals. They could defend themselves to some degree against bears and wolves – against which sheep and smaller cows would be defenseless.[4] They do not need pastures for grazing, as do sheep and cattle—in fact, they cannot digest cellulose. They are omnivores who will eat almost anything and can forage for themselves, finding roots, tubers, fallen fruits and nuts. They could therefore be turned out into the woods for months at a time and re-captured in the fall to be fattened and slaughtered. This omnivorous diet made the pig "an ideal companion for humans" (Davis 1987:127).

In his study of New England ecological history, Cronon (1983:136) described swine as "weed creatures" because they bred so quickly – sometimes twice per year – and had litters of 4-12 piglets resulting from a gestation period of less than four months. By comparison, cows gestate for nine months and typically have one calf per birth (Harris 1997:67). Pigs are also the fastest and most efficient of the domestic animals at changing plants into flesh. Over its lifetime, a pig can convert 35% of the energy in its feed to meat compared to 6.5% for cattle and 13% for sheep (ibid.:67); modern pigs will gain one kilogram in weight for every 3.5 kilograms of food (Serpell 1986:19). The optimum slaughtering age for a pig is younger than that of a cow, which means a faster return on investment. When it comes time for slaughter, pigs provide the highest percentage of dressed meat of any other livestock: 65-80% compared to 50-60% for

[4] Robert Macdougall, an early Scottish farmer in Upper Canada, wrote that sheep were troublesome; they needed grass and the wolves went after them. You would be lucky to find "one or two tattered hides, and fragments of bone" in the morning (1841:103).

cattle (Reitz and Scarry 1985:70)[5]. There is very little butchering waste from a pig, since meat was commonly extracted from the head and feet. Entrails and blood were also used in food products such as sausages and blood puddings. One need only consult historic cookery books to find the many ways in which different parts of the pig were consumable. Many 18th and 19th century cookbooks contain recipes for pigs' feet and headcheese (e.g., Dominion Home Cookbook 1868; Glasse 1971[1796]); Simmons 1958). Fresh pork spoils quickly due to its high unsaturated fat content, but keeps almost indefinitely when preserved for that same reason (Bowen 1990:128,136-137). On the other hand, beef needs to age for about a week but keeps longer unpreserved without spoiling (Bowen 1990:139).

Besides the above qualities, pigs are tolerant of a wide range of environments and not very agile (Garrard 1984:48). They are also good sailors who due to their size were easy to carry in ships; cattle were harder to transport due to their size and sheep did not adapt well to new diets or environments (Wing 1989:77). Both these species needed grazing land, which was not readily available in newly settled areas. Meadows and pastures were scarce in early Upper Canada, and cleared land was usually used to grow crops such as wheat, oats and barley (Jones 1942:14). The growing of wheat to supply the Empire was a primary concern of the British government, and arable land was not "wasted" on livestock (Jameson 1990:289).

[5] This may affect biomass data, since the same slope and Y-intercept are generally used in the allometric formula for biomass of all mammals. Thus in terms of meat weight, the effective consumption of pork may actually be somewhat higher than is indicated by standard biomass calculations.

Pigs seem to have been accepted as essential to initial settlement. Robert Macdougall, a Scottish emigrant to Upper Canada's newly settled Huron Tract who specialized in cattle breeding, wrote in his Gaelic language emigrant's guide that:

> "Any man who decides not to give the pig a fighting chance...ought not to go to America...the pig is the king of the animals in America[6]; dead and alive. The pig is the first animal the new farmer must obtain, and the last animal he should part with...the farmer without pigs in America, is not worth much; he is a senseless man, a useless husband, and a bad neighbour." (Thompson 1998[181]:105)

His admonitions imply that pigs were not a popular livestock animal in his native Highlands and that in order to succeed in the New World, his countrymen would have to adapt to include them in their livestock.

4.3 Salt Pork as Staple Provision and Unit of Economic Exchange

Fresh meat was not always available in early 19th century Upper Canada, as butchering was generally a seasonal practice in order to obtain the most from meat in terms of amount and preservation (Bowen 1990). As late as 1837 it could still be difficult to get any meat other than salt pork in a market town the size of Toronto due to transportation problems in the spring caused by flooding (Jameson 1990 [1838]:150). Jameson noted that:

> "Quantities of salted provisions are still imported into the country for the consumption of the soldiers and distant settlers, and at certain seasons – at present, for example – there is some difficulty in procuring anything else." (1990[1838]:151).

Jameson wrote this in April. Settlers' letters and journals confirm that spring was the season in which fresh meat was scarce and the diet of salt pork became monotonous

[6] Highlanders referred to all of North America as "America". In this case Macdougall is referring to his experiences in Upper Canada.

(e.g., Langton 1926:115; Miller 1968:214). This agrees with Bowen's conclusions about seasonal reliance on salt pork in 18th century New England (1990:121-122). This seasonal reliance was a result of cost/benefit analyses on the part of farmers–they did not want to slaughter livestock for fresh meat until the animals had reached an optimum weight relative to what had been invested in feed and care. After a long cold winter, livestock born in the previous year would not be at their optimum weight, and breeding animals would have yet to give birth. Optimizing meat yield also involved deciding whether meat would be preserved, shared or exchanged. Meat that had to be chilled in order to preserve well, such as beef and pork, needed cool temperatures, thus pigs and cows were generally slaughtered in late fall in order to lay in stores for the winter (Bowen 1990:118). For all these reasons, salt pork was important as a dietary staple during this time and through to the spring.

This reliance on preserved pork was by no means particular to Upper Canada. Hattori and Kosta note that pork packed in barrels ("packed", "salt" or "salted" pork) was common throughout the United States in the 19th century and was well suited to life on the American frontier (1992:82). At the Hoff Store Site in California, 543 pig bones were identified – some of which were found in association with the remains of a wooden barrel. Head parts were present but the feet didn't seem to be included (ibid.:83, 85). Contemporary recipes and descriptions of the salting process and regulations surrounding government purchases of packed pork do not indicate that the meat was deboned unless the barrel contained only hams and bacon (Clay 1875:40; Haight 1885:28). The whole pig, including head, was often chopped up and packed

(Langton 1926:76). [7] Preserved pork as a commodity was regulated and there was some measure of quality control. Barrels were graded according to the body parts included. In Canada, "mess pork" contained "nothing but side pieces"; "prime mess" contained hams, shoulders and sides; and "prime pork" contained "the whole hog cut up indiscriminately" (Traill 1995[1855]:151). Keele (1844:27) cites four categories: mess, prime mess, prime and cargo pork. Canadian regulations as of 1844 required that the pork be cut as squarely as possible into 4 to 6 pound chunks, then sorted by quality and packed into barrels of 200 lbs. each, then "well-salted" (Keele 1844:27-29). According to Traill,

> "The usual way of dividing the hog is to take off the head; cut out the hams, and fore legs, ham shape; and divide the rest of the carcass in pieces, which are cut clean through, chine[8] fashion. These are rubbed and packed in clean salt, as tight as the barrel can be packed, and the barrel is then filled up with strong brine." (1855:148).

In 1807 Quetton St. George, a York merchant, advertised in the York Gazette for pork from the surrounding countryside, among other farm products. He requested that the pork be well-cured, and warranted for twelve months; the barrel was required to bear the vendor's name and the date of delivery (reprinted in Firth 1962:132).

Could it be that packed pork does not leave as much faunal evidence as fresh pork after it is consumed? This might then account for cases in which less pork appears in an early assemblage than is expected. At the time of writing, we are still unable to distinguish packed from fresh pork in archaeological assemblages (Bowen 1990:182;

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[7] Later in the century they might not even be chopped up: The Brampton (Ontario) Conservator reported that "small pigs, cured entire, are the latest novelty in the pork-packing line" (The Brampton Conservator, Dec. 1, 1876).

[8] A "chine" is a joint of meat containing all or part of the backbone.

Landon 1996:118). Although Landon has proposed that meatier pork pieces in urban contexts might reflect packed pork (1996:124), this would only be true if the urban consumers had purchased higher grades.

The production and consumption of packed pork in Upper Canada is an example of how the settlers fit into a much broader economic system. Foodways in the 19th century Northeast became more commercialized and moved away from a strictly subsistence-based economy (Bowen and Manning 1994:7). Much of the pork eaten in Upper Canada was imported from the United States. In 1834, John Langton wrote to his father that he and another farmer had ordered 30 barrels of pork from a speculator who was travelling to Ohio. He needed this pork (his "greatest expense") to feed his hired men and himself; what he couldn't use he would sell to his neighbors (1926:76). Trips to towns often involved bringing back barrels of salt pork and flour (e.g., Strickland 1853:194). However, this purchased meat may not always have been of the best quality. Traill complained that,

> "A great deal of the barrels of pork sold in the stores is coarse, loose, flabby pork – distillery-fed, or else nut-fed...This pork is known by its soft, oily fat; the meat running away to oil, in the act of frying... it is better to purchase your meat fresh of some respectable farmer, or salt it yourself." (1855:150).

If much purchased pork was of poor quality, this may have contributed to the distaste many new immigrants felt for it and subsequent complaints about the quantity eaten.

The need for preserved pork to equip new and distant settlers, feed soldiers and sustain city dwellers in the spring made salt pork an important source of income for Upper Canadian farmers who could spare the meat. Pigs were known as "fruits" and "mortgage lifters" – references to the profitability of pork as a commodity (Pollard:19--

:57). Copleston (1861:110-111) claimed a ratio of ten times selling price to cost for a pig – one can assume from sale of the pork – and advised new immigrants that the most important profit on a farm was derived from pigs. Given its proximity to an important market town, this was quite likely part of the economic activity at the Ashbridge farm, with prime pieces being packed in brine for sale. This would explain the dearth of "meatier" pieces in the pig assemblage.

The salting of pork also demanded participation in a market economy regardless of whether the pork was sold or consumed on-site, as salt had to be purchased and was often imported from the United States. A tax on imported barrels of salt caused considerable dissent in Upper Canada in the 1830's (e.g., Mackenzie 1833:428) as it raised the cost of production for Canadian farmers.

Pork also functioned as a unit of exchange with natives, who would offer venison, fish, or baskets for salt pork (Dunlop 1889:28; Langton 1950:35; Jameson 1923:66; Miller 1968:187; Moodie 1989[1852]:290; Strickland 183:6-58; Traill 1989[1836]:135, 140). It is tempting to think of the deer lower limb in the Ashbridge assemblage as butchering waste from just such an exchange.

4.4 Salt Pork and Status

The fact that Anna Jameson, an English traveler in Upper Canada, cited transportation problems from her vantage point in Toronto suggests that there was a problem of getting fresh meat into the city, not that fresh meat was totally unavailable. Indeed, she noted that "The higher class of people are supplied with provisions from their own lands and farms, or by certain persons they know and employ." (Jameson

1990[1838]:151). Stores of frozen meat might have been transported into the city for consumption by city dwellers with rural property or connections. Salt pork may have been the primary staple meat, but fresh meat was generally obtainable if one had the means. Studies of New England sites, probate inventories and account books have suggested a correlation between the amount of fresh meat consumed year-round and socio-economic status (Bowen 1990:175-178; McMahon 1981:18). Although pigs were generally butchered in the late fall, for salting, documentary evidence from Upper Canada shows that butchering also occurred during the winter. In January 1839, Anne Langton wrote that she had killed a small pig and was just waiting for a barrel of salt to kill a larger one (1950:81). In February she mentioned slaughtering another pig (perhaps the larger one for salting – although it is conceivable that some may have been eaten fresh). Another Upper Canadian settler, Mary O'Brien, wrote in February 1834 of having fresh beef from an ox killed at Christmas, which would probably last until spring if kept cold (Miller 1968:37).

Fresh meat, and meats other than pork, were valued more highly than preserved pork. If not abundant, they were reserved for special occasions or guests. John Langton wrote in the winter of 1834 that he had 30 pounds of beef and a half-bushel of turnips, but "these are luxuries which I reserve for chance guests on such great occasions as Christmas or New Year's Days". His mainstay diet at that time was salt pork and black bass that he caught himself (1926:57). There was an element of social, as well as economic exchange involved in distribution of fresh meat. When Mary O'Brien was down to her last bits of cold ham in July, she received four quarters of mutton from the town butcher, ten miles away. She promptly rowed across the lake to share some with a

neighbor (Miller 1968:37). This would make sense, as the weather was hot and the meat would have quickly spoiled; but since preservation was possible, this also indicates a reciprocal relationship between neighboring settlers that would have made life a bit easier in the bush. Susanna Moodie recounted her family's experience of having six fat hogs – their "whole store of winter food" – destroyed by squatters with whom her husband had argued. This was the equivalent of three barrels of pork, and they were "half-starved". They only survived the winter by the kindness of neighbors who shared meat with them (Moodie 1989[1852]).

4.5 Pigs, Agency and the Wilderness

Despite all of their advantages as livestock, staple provision and unit of economic exchange, pigs were not always the settler's friend. They differ in other, negative ways from cattle and sheep. Despite the fact that pigs are basically sociable animals and piglets are easily tamed and make good pets (Serpell 1986:6) they can just as easily turn feral and can be aggressive. Old sows, in particular, were known to terrorize children (Jones 1942:141). Langton (1926:150) describes cattle so cold and weak in the winter that they couldn't get up and "in this helpless state it is said many cattle were eaten alive by the pigs". If they get hungry enough, they will even cannibalize each other; "a trait which they share with other omnivores, but most notably with their own masters" (Harris 1997:68).

Pigs can be hard to control and although not agile, are intelligent enough to escape from many enclosures. In early New England, ownership rights to swine were more circumscribed than those to cattle. If untended swine were a nuisance, they could

sometimes be killed, or impounded until the owner had paid for any damages (Cronon 1983:136). In order to run free in towns they usually had to be yoked and ringed (Bowen 1990:119) so as to inhibit their rooting activities. The animals were sometimes portrayed as a malevolent force laying siege to settlements. The Massachusetts Court in 1658 reported that "many children are exposed to great daingers of losse of life or limbe through the ravenousnese of swyne, and elder persons to no smale inconvenienceies" (cited in Cronon 1983:136). This attitude did not change in two centuries, as Susanna Moodie later described feral pigs in the Upper Canadian bush in the 1830s:

> "At that time they had a race of pigs, tall and gaunt, with fierce, bristling manes, that wandered about the roads and woods, seeking what they could devour, like famished wolves...I know a gentleman who was attacked in the bush by a sow of this ferocious breed, who fairly tried him in the woods of Douro, and kept him on his uncomfortable perch during several hours, until his swinish enemy's patience was exhausted, and she had to give up her supper of human flesh for the more natural products of the forest, acorns and beech-mast." (1989[1852]:284).

Moodie had an interest in selling her book, and this story may have been exaggerated for dramatic effect or gathered from "a friend of a friend". However, pigs can indeed be aggressive when provoked, and are certainly destructive of human constructions such as fences and gardens. Complaints against pigs were a frequent occurrence in the early 19th century. The York Gazette of May 1, 1812 published a notice to the owners of swine from the town magistrates, prohibiting the animals from running at large after that date (Firth 1962:108).

So in some ways, pigs may have been associated with the wild as well as with civilization. The binary concept of culture vs. nature, or civilization vs. wilderness, goes far back into the human past. There was a strong negative association with the

uncultivated, and forests were associated with marginality and exclusion (Montanari 1993:5). In European folklore, bad things often happened in the woods and they were a dangerous place. In more modern times, the New England Puritans believed they had a divine mandate to subdue the wilderness (John Winthrop, quoted in Merchant 1993:71). They perceived the New England wilderness as "hideous and desolate" (William Bradford, quoted in Merchant 1993:68). This attitude is reflected in later writing, such as that of Moodie who wrote in 1834 of bringing into cultivation "the waste places of the earth" (1989[1853]:282).

Within this context of taming the wilderness, which meant imposing a whole complex of European lifeways, livestock played a crucial role (Wing 1989:78). They were an integral part of the whole system of European production. Cattle and sheep could not flourish on native American grasses which had evolved separately, so European grasses such as bluegrass, timothy and clover were imported and soon crowded out native vegetation. Boundaries that had never existed before were required in order to contain livestock and protect subsistence crops (Cronon 1983; Crosby 1993). These changes in the landscape were required by, and enabled, a capitalist system of production based on exploitation of nature and the concept of private ownership.

Big-game hunting (i.e., African safaris, Indian tiger shoots and "pig-sticking"[9]) is often interpreted as a metaphor for European conquest by affirming the "superiority" of colonists over native animals (e.g., Cartmill 1996:134; Ritvo 1987:254; Serpell 1986:5). This analogy can be stretched to include the imposition of controlled,

[9] "Pig-sticking" was a popular hunting activity for the British in colonial southeast Asia. The boar was speared rather than shot, giving the hunter more immediate participation in the death (Ritvo 1987:268).

constrained foreign livestock as a "replacement" for native wild animals. In the case of pigs, this may be too simplistic, as drawing a clear line between "wild" and "domestic" animals may be too rigid and structuralist an approach to this species (Nandris 1984:14). Garrard (1984:126), for example, has proposed a range between wild and domestic animals, citing controlled predation (game driving or corralling) or herd following as examples of activities that involve "wild" animals under human control. Based on this, it is reasonable to propose that pigs occupied a place between the wild and the domestic habitus. Pigs foraging in the woods might be hunted – John Langton (1926:129) wrote that the heads in his pork barrels often contained rifle balls (see Jones 1942:22 for evidence of "pig hunting" in Upper Canada) - and could in turn be vicious as any wild animal if cornered. The role of pigs in the early Upper Canadian landscape could have been as mediators between the artificial and the natural worlds, as *agents* of non-aboriginal settlers. When left to forage, pigs went back and forth between the artificial environment and the natural environment – the farmyard and the forest. By acting as an interface between the wild and the domestic spheres, pigs may have allowed humans to exploit a marginal environment and survive long enough to bring that environment within the sphere of civilization.

There is precedent in anthropological literature for viewing animals as agents for humans in the non-human world. For instance, Tani (1989) proposed that in certain European shepherding traditions, a castrated male flock leader – who, unlike the reset of the flock, is named - functions as an agent of the dominator (the shepherd). This leader mediates between the shepherd and the flock, "between the dominator and the dominated" (ibid.:187). Tani correlates this with the use of eunuchs in the ancient

Middle East, citing eunuchs and flock leaders as "functionally analogous" (ibid.) Would it be too much of a stretch to view the pig along similar lines? The flock leader has purposely been trained to fulfil its function; pigs' their role as mediators and agents could have been partly a function of their nature and partly of human intervention in the context of animal husbandry.

4.6 Pigs and Power

The classical, hierarchical vision of creation stemming from Aristotelian philosophy lasted well into the 19th century in the West. It saw the world as created for human convenience. This viewpoint extended beyond human-animal relations to the "lower ranks" and other races (Cohen 1994, Ritvo 1987; Serpell 1986:163). Lower classes were sometimes referred to as sheep or cattle, or (along with alien groups) compared with wild animals - dangerous and uncontrollable (Ritvo 1987:16). The dichotomy between wild and domestic animals was frequently compared to that between civilized and "savage" human societies in an attempt to justify European domination of other races. The publication of Darwin's On the Origin of Species in 1859 served only to emphasize human superiority in that humans were considered to be the most highly evolved creature and had "earned" their place at the top (Cartmill 1996:134; Ritvo 1987:39). Clutton-Brock (1994:31) and Tani (1989:198) note relationships between livestock husbandry and slavekeeping, with very little difference in attitude towards the animals or the slaves – they were both animate property to be exploited.

Livestock improvement began in the late 18th century as an occupation of the elite, who strove to create "better" animals – from the human point of view of course, not necessarily the animals'. The usual purpose of "improvement" was to create meat efficiency by reducing the amount of time it took for an animal to reach optimum meat weight, and to increase the amount of meat on one animal (Ritvo 1987:72, 75). Ritvo (1987:49) sees a correlation between prize animals and the elite who used them as tools for display and self-assertion. The "improvement" of pigs was slower to interest farmers than that of horses, cattle and sheep (Jones 1942:273; Wiseman 2000). Although pigs were not written about as extensively as other livestock during the era of improvement, they were widely distributed among the lower classes. Wiseman correlates the unpopularity of pigs in 18th and 19th-century agricultural treatises with the rise in popularity of sheep in Europe. Sheep required cleared forests and sparsely-settled land. Meanwhile, the peasants continued to rely on pigs for meat. (ibid.:xvii).

The pigs of Upper Canada were not well-thought of by travelers or British settlers; in fact they were the most disparaged livestock, often referred to as "vicious creatures" and termed "landpikes", "razorbacks", "alligators" and "shingle-pigs" (Jones 1942:141). "Ex-Settler" wrote, "I can compare one of them to nothing but a small greyhound, with the great head of a rhinoceros, and their ears are like huge plantain leaves" (1853:94). This coupled with the fact that pigs are generally last in lists of livestock[10] confirms that in terms of display value pigs were less "valued" animals than horses, cattle or sheep in the minds of the elite, and may indeed have been associated with farmers of lower wealth and status. However, in terms of economic value they

were invaluable for those who had no grazing land and needed both meat and a source of income.

[10] See, for example, "Prizes at Livestock Fair", The Brampton Conservator, December 9, 1876.

CHAPTER V
CONCLUSIONS

Both archaeological and documentary evidence confirm that pork was a very important part of the Upper Canadian settler's diet. However the documentary sources give an impression of quantity that is not fully consistent with archaeological data from early farmsteads. Based on NISP and MNI, there does seem to be some evidence for using the abundance of pig remains relative to other species in an assemblage as a "barometer" of the stage of development of the farm and of the area in general, in terms of access to a market. However, at the Ashbridge Estate, biomass measures of a faunal assemblage dated from c.1810–c.1860 show that nearly twice as much beef as pork was represented by the bones. This may be explained by the fact that the Ashbridge farm was on a road that led from the fast-growing market town of York/Toronto to the established town of Kingston, and was also on the lakeshore. Even if the roads were impassable, transport to and from town by water (or ice in winter) was still a possibility. Relative access to commercial sources has an effect on species identified in an assemblage. This can be seen in the case of the remote Moodie farmstead site, where wild species formed a significant part of the occupants' diet.

It is very likely that the Ashbridges not only consumed pork but also packed it for sale, which would have contributed to their prosperity. This may have been some of the activity that occurred in the area of the cellar. Perhaps it was used as both a summer kitchen and a processing area for less-meaty elements. Farms that were more

integrated into a market economy may show less pork in terms of biomass because the occupants not only had more access to other meats, but sold much of their own pork for profit. Historical studies have shown that farmers responded not only to urbanization but to other market forces such as international trade, developing industries, and war; all of which created market demand for animal products (Bowen 1998:138). The rising prominence of Toronto as a pork processing center in the later 19th century would have created a ready market for pork and pigs on the hoof; the groundwork for this industry would have been laid in the earlier part of the century by farmers such as the Ashbridges.

The early settlers formed part of a colonial military-economic system, of which individual farms and settlements were only a part. Livestock, in turn, functioned as unwitting agents in this system. The Old World settlers in Upper Canada were not given time to adapt to their new landscape. The British government pushed them to clear land at a certain pace and to grow certain crops and livestock. Besides providing a level of defense against possible invasion by the United States, settlers were needed by the British government to provide food for the empire. Pigs didn't compete for land that was needed for wheat production and provided a transportable commodity when their meat was preserved in barrels. As in their role as mediators between forest and settlement, pigs were agents of not only Upper Canadian settlement but of British imperial dominance.

As time passed, settlement intensified and land was cleared. A trend towards more beef and sheep/goat relative to pig can then be seen in some sites. It is interesting to note that the decline in popularity of pigs in Upper Canada relative to cattle and

sheep was a reflection of what occurred in the medieval Old World, as less forest became available due to increasing population (Wiseman 2000:8).

Perhaps due to its relationship to the wealth of a farmer, pig farming and consumption of preserved pork may have been associated with "lower" status – with the bush or with city dwellers who did not have access to fresh meat in the spring. Wealthier travelers like Elizabeth Simcoe and Anna Jameson did not have to rely on salt pork to such an extent as others; and even then mainly when travelling. Seasonality should be considered when analyzing faunal assemblages, as the relative importance of meats may have fluctuated with the seasons (Bowen 1990:170). A preponderance of meats other than pork may indicate that the assemblage represents fall or winter consumption, as preserved pork was a year-round resource.

Within the European livestock complex, pigs played their particular role as food staples; as units of economic exchange with other settlers, with natives, with markets and with the colonial government; and as facilitators who paved the way for cattle and sheep farming by allowing farmers to survive until they had changed the landscape to a more European model of pastures. This intermediary place between domestic and wild was expressed in the way that pigs were allowed to roam freely in the bush and then were hunted down or corralled back into the settlement. Other animals were also important – oxen were very important for clearing land, horses for transportation, sheep for wool, cows for meat and dairy, chickens for meat and eggs. Each had their own important role to play in the intricate relationship of livestock and economy that enabled European settlement to flourish in the New World.

However, pigs were the only members of this livestock complex that allowed humans to exploit marginal environments and convert this "waste" to usable meat for consumption and exchange. They competed with natives and wild animals for forest resources and crops. In this way they functioned as intermediaries between the bush and settlement and blurred the lines between these two concepts. Ironically, by making the bush productive, pigs made it easier to destroy. In reference to New England, Cronon has stated that "pigs thus become both the agents and the emblems for a European colonialism that was systematically reorganizing Indian ecological relationships" (1983:137). This applies to Upper Canada as well.

As European settlement became denser in the Northeast, more concern was given through law to constraining the movement of pigs. Although pigs enabled settlement in an environment where there was plenty of wild space, as wild space decreased, their movements were increasingly constrained until finally they were more or less entirely confined to fenced yards. It seems that human civilization and pigs cannot coexist to the benefit of both species. So as long as there is wilderness – forest in our case – the pig can serve very well to convert forage to meat. When land is cleared and agriculture intensifies, the cost relative to benefit of feeding pigs valuable grain is in doubt (Harris 1997:76-77). This trend has resulted in modern hog farming operations, far removed from towns, where pigs are confined to a concrete-floored space with no room to even turn around; the only time they may get a glimpse of the outside is on their way to the slaughterhouse (Horwitz 1998). Within the context of European colonization, the freedom of pigs and the extent of civilization appear to have an inverse relationship. In the modern world, we are removed from nature, as factory farm animals

are removed from our daily lives (Clutton-Brock 1994:34). Pigs now appear to have lost their role as agents, and have become merely products in our society.[11]

5.2 Strengths of Study

This study has used archaeological and documentary evidence together not merely as checks on each other, but as a way to find and examine any incongruities that may reveal even more about the place of pigs and pork in Upper Canada. While it would certainly have been possible to write about ideological aspects of pigs based on documentary sources alone, the archaeological evidence provides proof that there was something *more* than simply dietary choice involved. Pork was not the only, or perhaps even most abundant, meat eaten, yet it is the most-cited in documentary sources.

This thesis has also demonstrated the need for more consistent quantification of relative abundance in zooarchaeological analyses as well as the need to use different quantitative methods in combination. At least as much information can be gained by the differences in abundance between measures as by each measure alone.

In this study an attempt was made to incorporate certain post-processual aspects into a zooarchaeological analysis. The evidence in this respect may not have been conclusive but it has certainly provided food for thought regarding the place of animals in the human past, present and future.

5.3 Suggestions for future research

The most pressing need in order to further clarify the role of pigs and pork in

[11] Unless one considers the problem of waste from massive hog farming operations as negative agency toward humans – pigs' revenge?

early Upper Canada is to obtain more data. This would include full analysis of more historic Ontario site assemblages, as well as application of measures such as biomass to better quantify dietary importance of different meats.

Investigation into how to detect salt pork would be of tremendous use in this type of study. Bowen (1990:182) has suggested that traces of preservatives may remain in the bone – perhaps chemical analyses could find these. Some investigation by use of butchering technique may also help – Canadian government regulations required that pork be cut up into regular cubes of certain dimensions for packing (Keele 1844). Pork was also graded according to the cuts it contained (Keele 1844; Traill 1855:148). Landon (1996:124) suggests that skeletal representation could be used to identify packed pork. A preponderance of certain body parts might therefore indicate purchase of certain grades of pork, particularly if a higher (less bony) grade of pork had been purchased. The study of descriptions of mass packing operations in combination with these regulations may aid in this. This type of further research might identify both sites of packing and sites of consumption.

More investigation could be done into possible differences in the foodways and animal husbandry of British and American immigrants to Upper Canada. This could combine both documentary and archaeological investigation, including study of botanical remains. It would also be interesting to apply this study to other areas of European colonialism such as India, Africa and South America to see if pigs were used in the same way as in North America, or if other animals fulfilled this role. An approach similar to "middle-range theory" as defined by Binford (1981) would be useful, in that modern ethnographic information could be obtained from farmers and settlers in

marginal areas. Such data, if assumed to be applicable to historic populations, would help to fill in conceptual gaps in our understanding of the relationship of humans and their livestock in areas of early settlement.

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